THE NATURAL HISTORY OF BRITISH SURFACE-FEEDING DUCKS

BY J. G. MILLAIS

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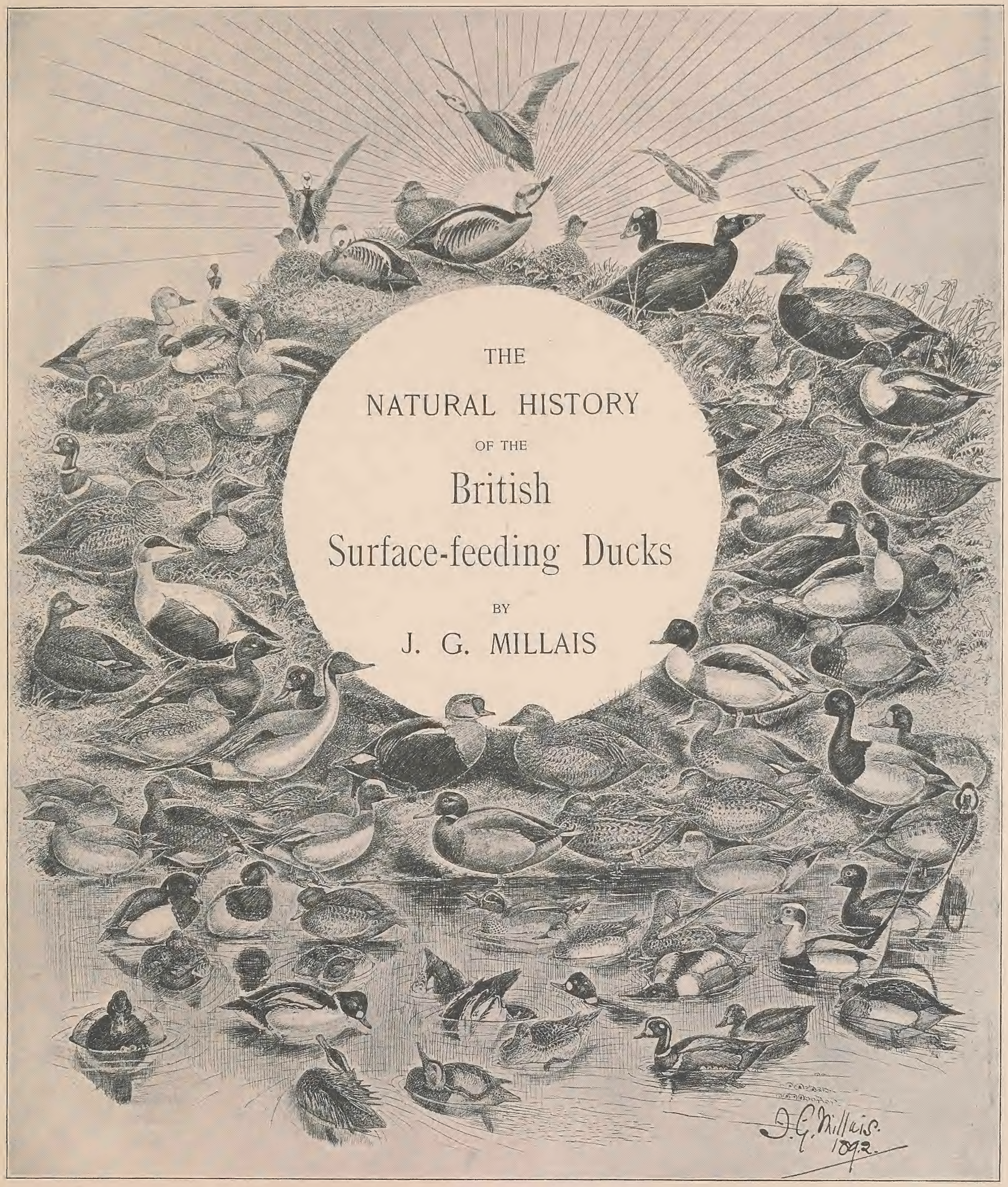

THE

NATURAL HISTORY
OF THE
British Surface-feeding Ducks

BY

J. G. MILLAIS

J. G. Millais.
1892.

BY THE SAME AUTHOR.

THE WILDFOWLER IN SCOTLAND.

With a Frontispiece in Photogravure after a Drawing by Sir J. E. Millais, Bart., P.R.A., 8 Photogravure Plates, 2 Coloured Plates, and 50 other Illustrations from the Author's Drawings and from Photographs.

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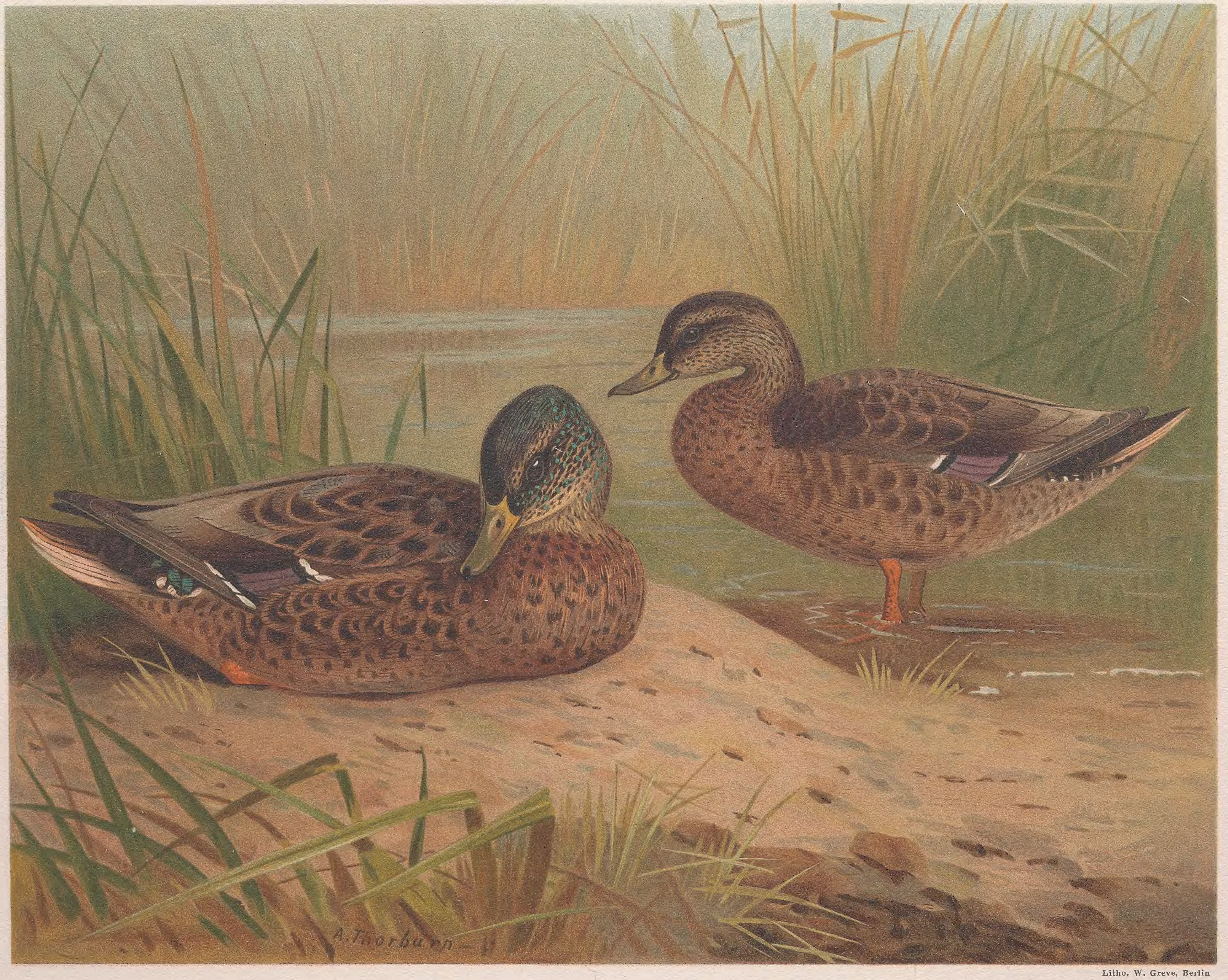

Litho. W. Greve, Berlin

MALLARD.

Anas boscas.
Adult males in Eclipse Plumage.
Left Figure, July. Right Figure, August.

PLATE I.

THE NATURAL HISTORY

OF THE

BRITISH SURFACE-FEEDING DUCKS

BY

J. G. MILLAIS, F.Z.S.

Author of 'A Breath from the Veldt' 'The Wildfowler in Scotland' &c.

WITH 6 PHOTOGRAVURES, 41 COLOURED PLATES, AND 25 OTHER ILLUSTRATIONS

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BIRDS

PREFACE

About twenty years ago a rare duck and a wader, both in immature plumage, fell to my gun, and, eager to identify the species, I searched every known work on British birds, hoping to gratify my curiosity, but in vain. Birds galore were to be found there, *but not my duck*, and all those pictured and described were adults—with little or no information as to their plumage at any other stage of their existence. Brooding over my disappointment, I finally resolved to find out for myself all that was to be learned of these interesting creatures, their habits and modes of life, and every circumstance connected with their periodical changes of plumage ; and then decided I would, some day, embody this information in a book for the benefit of other students of Natural History.

From that day to this I have persistently laboured to this end, and this volume is the first-fruit of my research. It is only one unit—part of a series that should be written—for other species besides those mentioned here well deserve attention ; but so far as it goes it is an accurate record of my own experience and observations unhelped by any other source of knowledge ; for though in the long interval that has elapsed since I first set about the work many other works on British birds have appeared—good books, too, and admirably illustrated—yet none of them, so far as I know, cover the ground I have endeavoured to take up.

It is granted that the adults in nuptial dress have been well figured and described, yet there are still no books that will show the naturalist the birds in other states of plumage, and these conditions are after all quite as important to the scientist as the same creature in full maturity. The importance, too, of the moulting of birds becomes apparent when we consider that each moult marks a point of transition from one plumage to another, and a key to their relationship. The natural sequence of plumages, and moults too, still require elucidation in many families, whilst the times of year at which the moults occur, and the various modes of transition, still offer a broad field for investigation, in spite of the remarks of many superficial writers, who have stated that novel points in the ornithology of our Islands are not to be found. It is true that the broad lines of European ornithology have been well traversed, but I venture to think that there is still much work of permanent value to be done, and that it will be done by the specialist.

The illustrations speak for themselves. Some few that involve the use of three colours are not absolutely correct, for the three-colour process has not yet been brought to perfection; and it is impossible with dried skins to give the true colours of the soft parts; but the defects, such as they are, are but slight, and, to my thinking, far more than counterbalanced by the excellence of all the rest of the photographs taken direct from nature. The lithographs by W. Greve are perfectly accurate reproductions of the original drawings, and were executed by the same hands that produced the admirable plates in Lord Lilford's book on British birds. Very gladly would I have availed myself more largely of Greve's process; but the cost would have placed this work quite beyond the reach of the majority of those to whom I most desire to offer my work—the real students of Natural History, to whom every little detail is of interest.

For the use of eggs and young birds in down I am indebted to my friend, Mr. Heatley Noble, who most generously placed his unrivalled collection at my disposal. I have also to thank the Hon. Walter Rothschild for the loan of one or two rare specimens. All the other birds figured in this volume were drawn from specimens in my own collection, mostly obtained by myself in Scotland.

Mr. A. Thorburn has taken quite exceptional care in the preparation of his eight water-colour drawings, and though the birds depicted are not shown in their most brilliant colours, the drawings themselves are as powerful as any work yet executed by that distinguished artist. The three-colour blocks are the work of Messrs. Andre & Sleigh, of Bushey, and they have taken more than usual pains in their production.

In conclusion, I should add that I am very much opposed to the superabundance of genera into which the surface-feeding ducks have been divided by naturalists. In the case of the diving ducks the families of *Fuligula*, *Clangula*, *Somateria*, and *Œdemia* are all well marked and distinct, but not so in the surface-feeding ducks. It is really impossible to separate *Mareca*, *Dafila*, from the genus *Anas*, whilst it is equally absurd to differentiate the Gadwalls (*Chaulelasmus*) because of their pectinated mouth bristles. All the surface-feeders are ornamented in this manner more or less, the Shovelers in particular, and yet they are not included in that particular genus. It seems to me that one family, *Anas*, should embrace them all.

To gather together the materials for this volume and present as best I can the teachings of my experience has been a real labour of love to me, and my only regret is that the work cannot be produced at a less cost than the price at which it is issued to the public. Should my venture meet with success, I may be tempted to complete the series that I have long had in mind. In any case, my work may, I hope, be accepted as a modest contribution to the interesting science of ornithology.

J. G. MILLAIS.

Compton's Brow,
Horsham.

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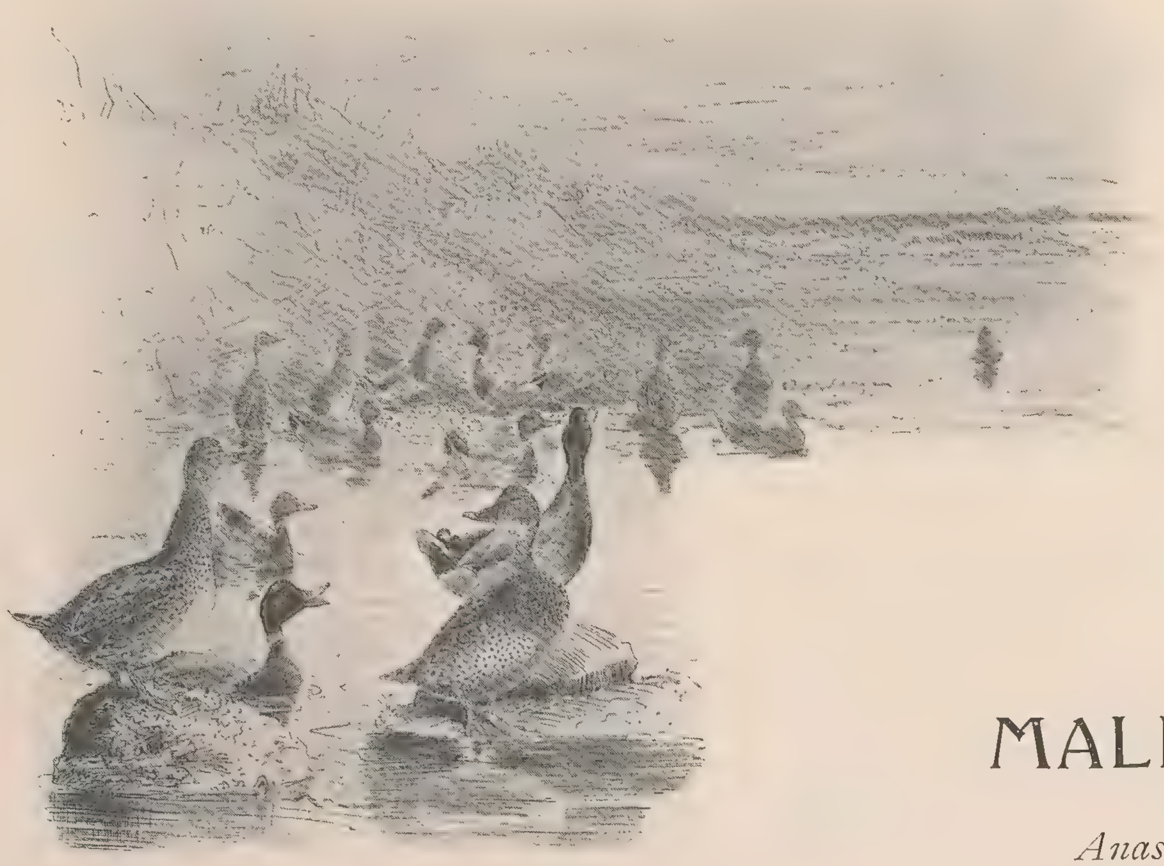
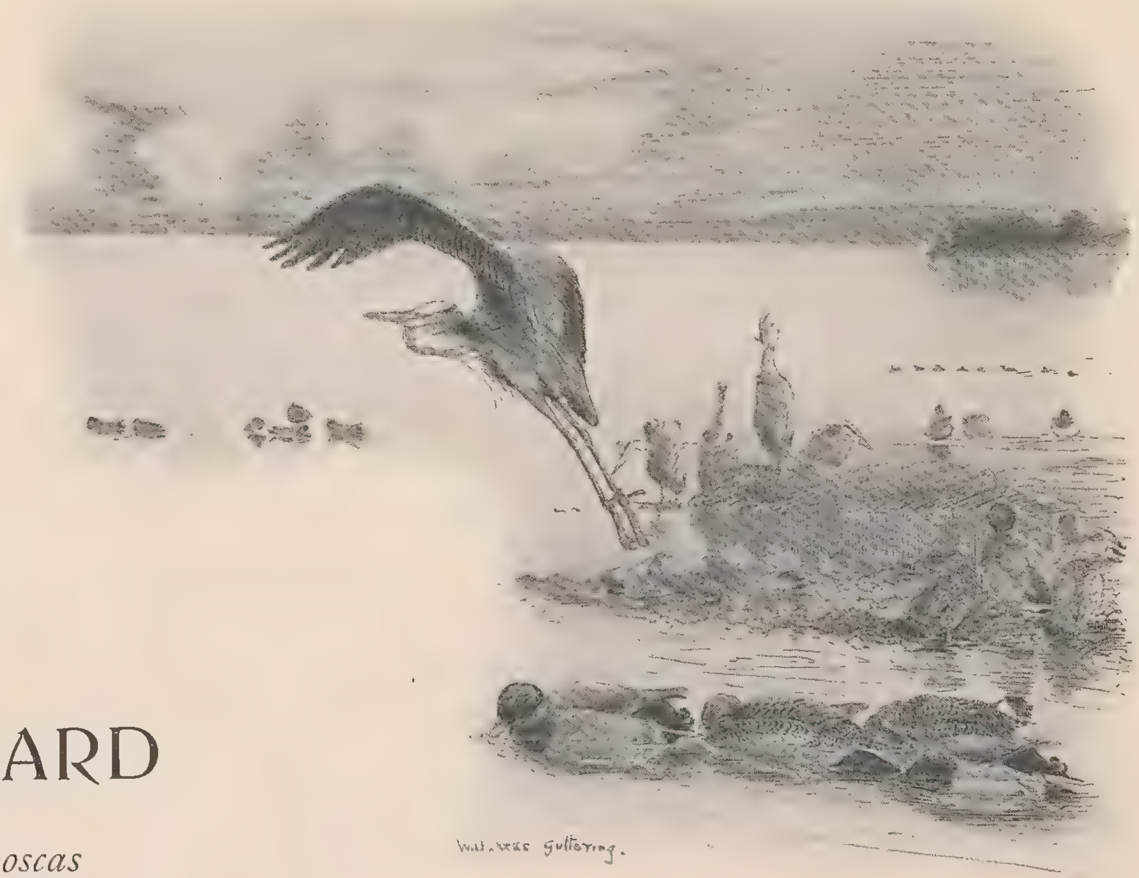
Wildducks about to rise.

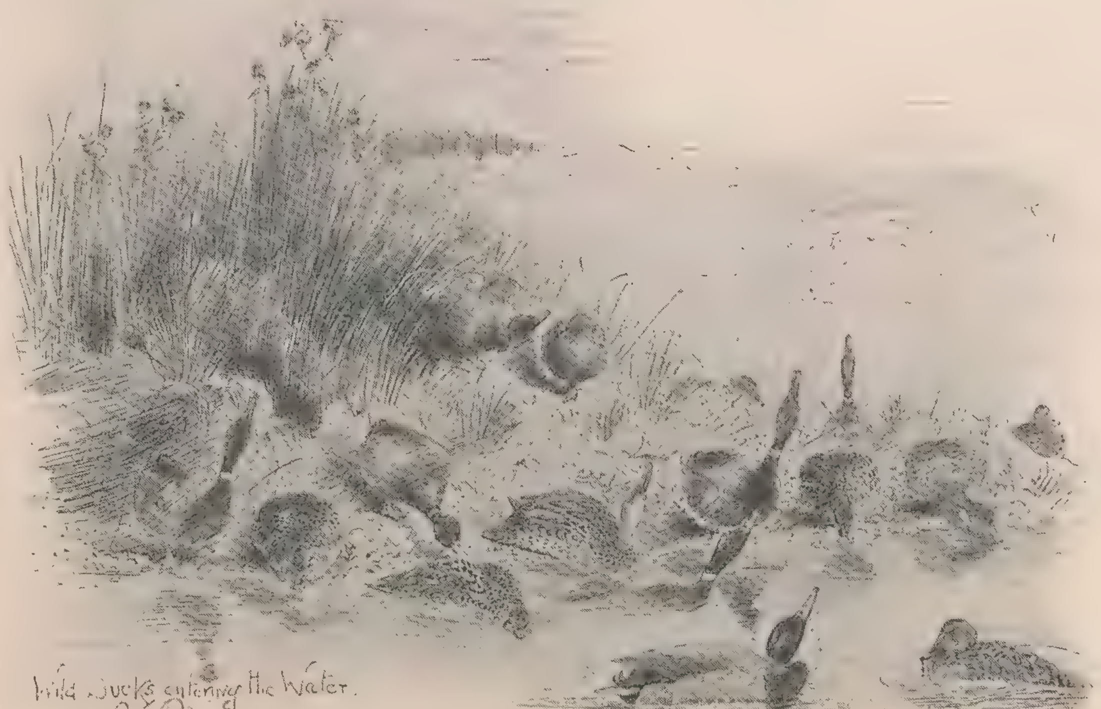




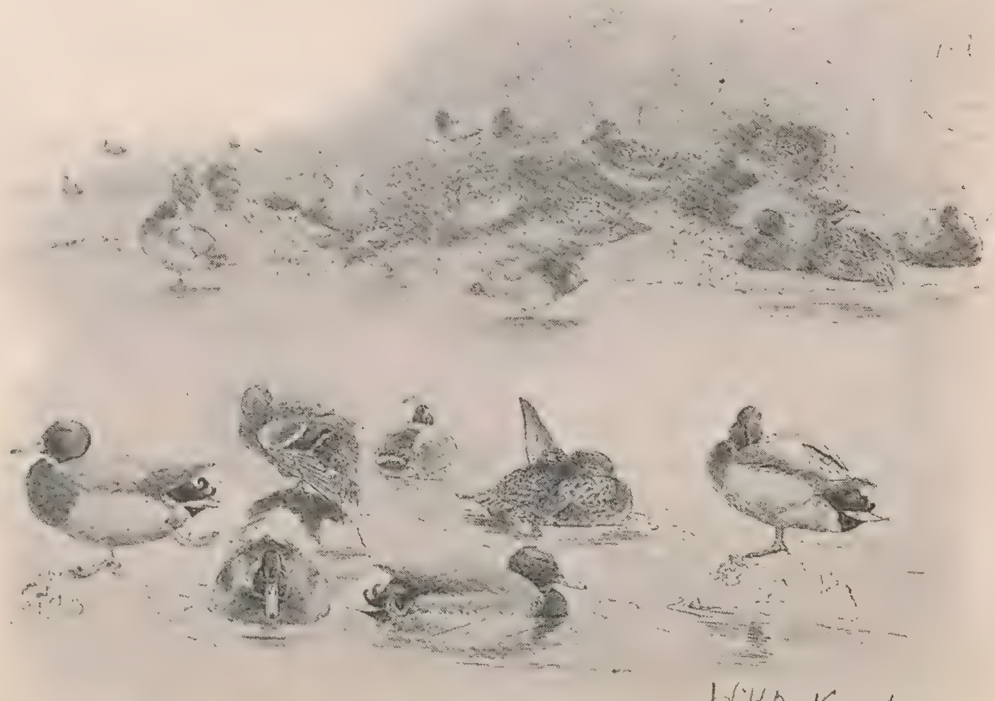
Wild-ducks guttering.

MALLARD

Anas boscas



Wild Ducks entering the Water.



Wild Ducks resting

STUDIES OF MALLARD HABITS.

THE
NATURAL HISTORY OF BRITISH DUCKS

THE MALLARD

Anas Boscas (LINNÆUS)

IN England the Mallard, like the agricultural labourer, is much less commonly met with than in days of yore, the ruthless hand of the drainer having largely deprived these birds of their favourite haunts; but in Scotland a different rule prevails. There the man with a gun is of more account: it is he who enriches the land with his superfluous wealth, and to encourage him in this laudable practice is naturally the first thought of landowners who seek to make the most of their property. As a step in this direction the Wild Birds' Protection Act was heartily welcomed, and to no bird was it more helpful than to the Mallard, who, until the passing of that beneficial measure, were indiscriminately slaughtered at the very time when they most needed to be let alone. In the month of March when, after pairing, they adjourned to their breeding-grounds, they fell an easy prey to the shoulder-gunner, who shot them down without any thought to the future. But happily that is all altered now. The shooting season ends on March 1, and from that time the great bulk of the birds have peace until the following August.

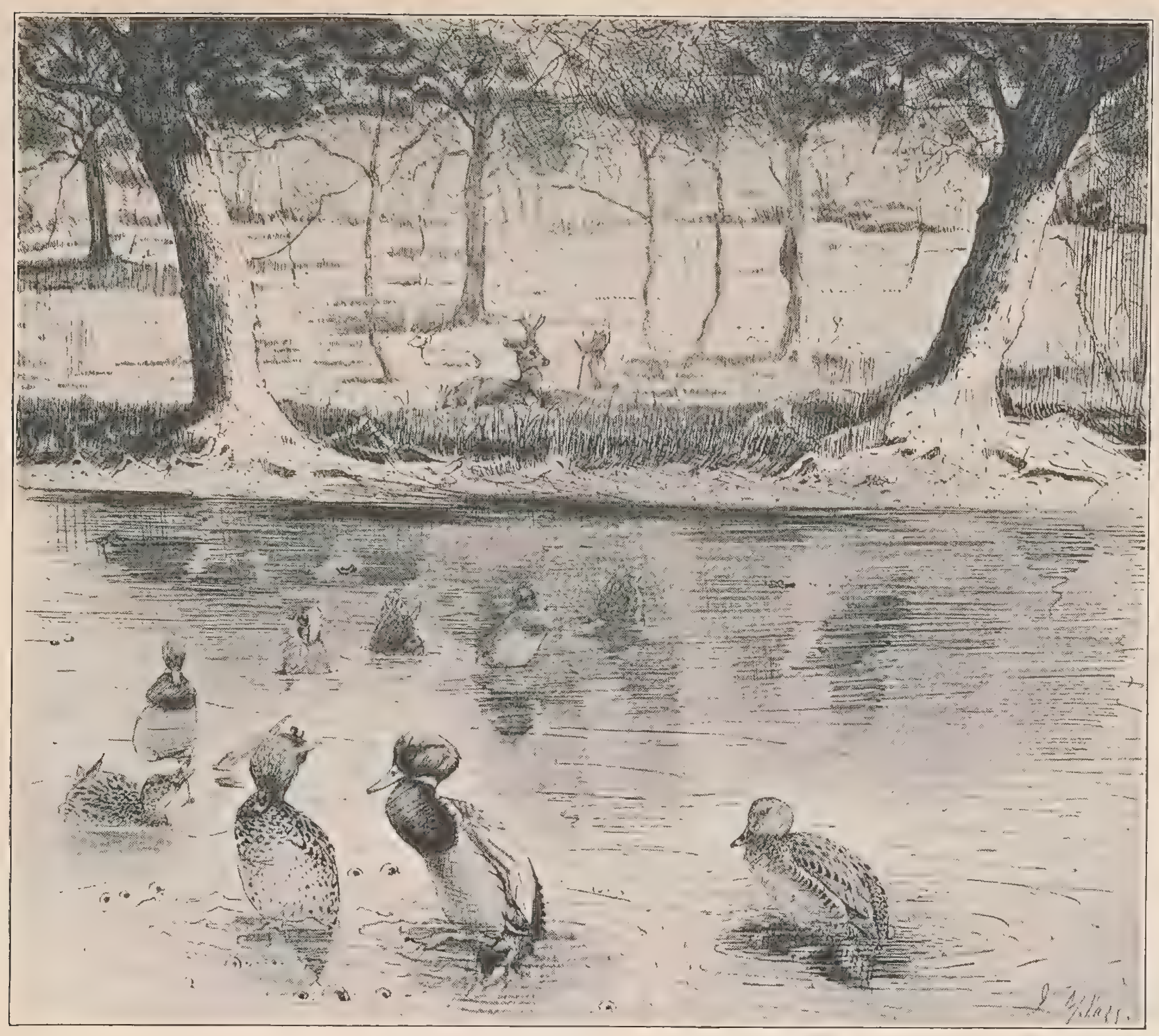
Taking everything into consideration, there is no bird which enjoys greater popularity with all classes than the Mallard: for to the poor man he provides many a dinner, and sometimes a little monetary help, and to the more fortunate he affords the best of sport, being a genuine wild creature—here to-day and gone to-morrow—while his beautiful form is a delight to all beholders.

He is, too, one of the most cosmopolitan of birds. Wherever marsh and waterways are to be found, there is he with his sombre-clad wife. In summer he wends his way north as far as the Arctic wastes, and in winter some stay on even in such high latitudes as the non-freezing rivers of Kamtschatka, while in Central Africa he ranges as far south as Lake Chad, and in India as far as the Nerbudda, though in tropical India he is rarely to be found. As soon as the Pamir Lakes on 'the Roof of the World' commence to thaw, the Mallard are there in thousands. They are also met with in great numbers throughout North America and Canada, and are generally distributed at different seasons through Central America, the West Indies, the Azores, Algeria, Egypt, Persia, India, China and Japan. In Europe they are found everywhere from the north of Norway to the Mediterranean, being especially numerous in winter off the coasts of Holland and in Albania.

Although forced to become a migratory bird, owing to the freezing of the northern waters of its palæarctic home, the Mallard may still be found throughout its summer range even so far north as Iceland, Kamtschatka and Siberia, provided there be some open waters where food may be obtained. In winter, too, it may be met with in many parts of the northern Rockies of Western America, where the temperature falls to thirty or even forty degrees below zero; living there in warm springs or along the margins of swift streams where the current is too rapid to allow the waters to freeze. Thus we see that, apart from the question of food supplies, which are apt to be cut off by the freezing of water, mere winter cold has little to do with the periodical migration. Like the true sea-ducks, the birds can stand almost any degree of frost, and apparently enjoy it, so long as the door of their larder remains open and there is food enough to satisfy their wants.

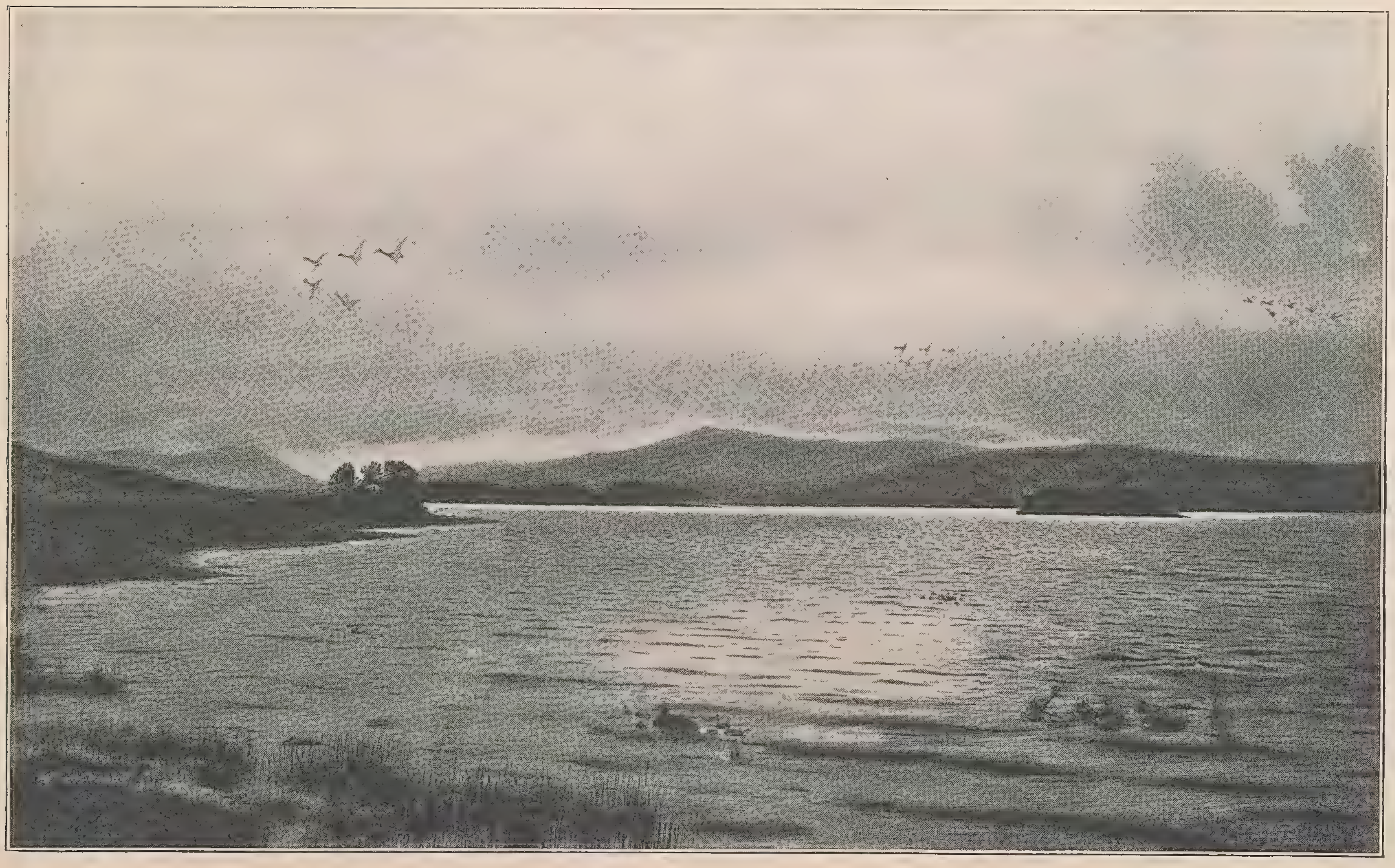
In the Central Eastern States of America the Mallard is not a very common bird, but in the Southern States, the Western interior and California the species is abundant.

Formerly Mallard used to breed in considerable numbers in Illinois, Indiana, Wisconsin, and Michigan, but now most of the birds proceed further northwards,



A TRICK TO MOVE THE WORMS.

Mallard will sit upright on the surface in shallow water, and quickly paddle the feet up and down so as to cause a disturbance in the mud below. This sets in motion the water insects, on which they largely feed in summer.



JULY.—BACHELOR PARTIES LEAVING THE LOCH AT SUNSET.

to Canada, the Hudson Bay country and the Arctic littoral, whilst many still nest east in Minnesota and in the prairies to the east of the Rockies of Wyoming and Dakota. Here I have seen large parties assembling after breeding in the marshy lakes; their number and extraordinary tameness at this season are quite remarkable.

This general distribution of the Mallard is mainly due no doubt to his omnivorous habits. Nothing comes amiss to him in the way of food. Almost any tender grass, insects of all sorts, shellfish, molluscs, fish, acorns or cereals—all alike appeal to his indiscriminating palate; and as some of these are to be found in every region under the sun, there the Mallard at one time or another bids them welcome to his hospitable maw. His digestive powers must indeed be good; and yet they are nowhere in comparison with those of true sea ducks, whose *dura ilia* are accustomed to deal with even still harder and more uncongenial fare. When keeping Mallard in confinement it is well to remember that they thrive best on a highly varied diet, with buckwheat and corn as the staple food. All ducks indeed (even 'Golden-eyes,' which are difficult to keep in confinement) will take readily to buckwheat, possibly mistaking it at first sight for the small molluscs and mussels on which they naturally feed.

Surface-feeding duck, it is commonly said, never dive in search of food; but this is not quite correct. When full grown they commonly content themselves with such insects or other food as they come across while sailing quietly along the water, not forgetting to turn tail upwards now and again in search of any delectable morsel that may be found below the surface; but occasionally the temptation to 'plunge' comes upon them, as upon other mortals, and when this happens—when some fish of tempting proportions ventures to come within their sphere of influence—down they go in pursuit, and gallantly stick to their prey so long as any hope of capture remains. This, however, is not a regular habit. The real exceptions to the rule are to be found in the immature birds—the birds three-quarters grown, and still unable to fly. At this stage of life the Mallard, encouraged by their attendant mothers, gain much of their food by diving.

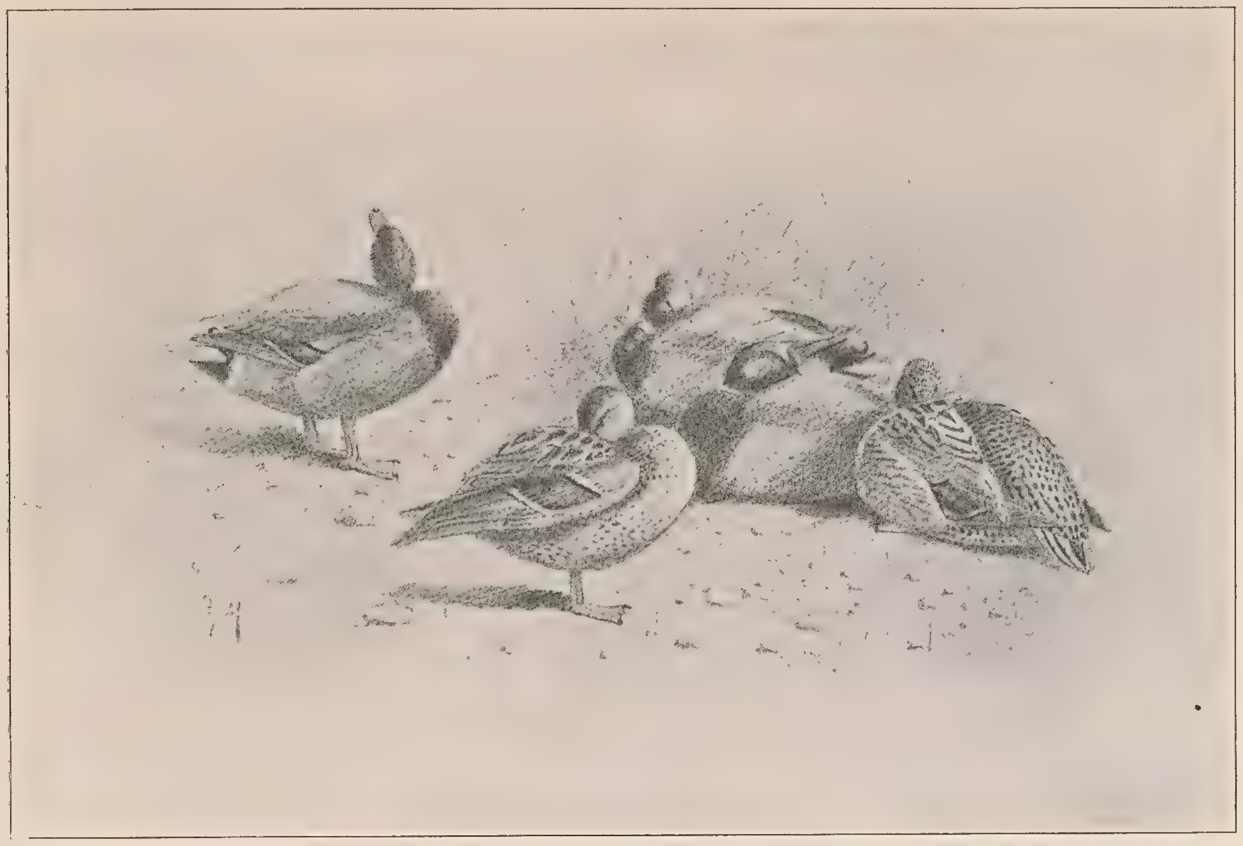
Like other surface-feeding ducks, the Mallard is most alive and active at night. It is his chief feeding time, and then he and the Teal, more commonly than any other species, betake themselves to the muddy edge of a tide or pond well known to them as a storehouse of good things. Plunging their bills into the ooze as they paddle or float about, and filtering everything through the fringe of saw-like teeth with which their mandibles are lined, their marvellous delicacy of touch enables them to distinguish between nutritious and noxious matter, and so they get what they want for their daily meal.

As showing the remarkable instinct—not to say reasoning powers—of the Mallard, I may mention that they are the only ducks which seem to have discovered the art of enticing worms and insects from the mud by standing up and 'treading' any shallow water that may be above it, in much the same way as the Plovers and larger gulls 'tread' the land or the sand, for a similar purpose. Balancing themselves on their tails, they work their feet rapidly up and down until the mud below is thoroughly churned up; the worms then come up to find out what is going on, and are promptly swallowed for their pains.

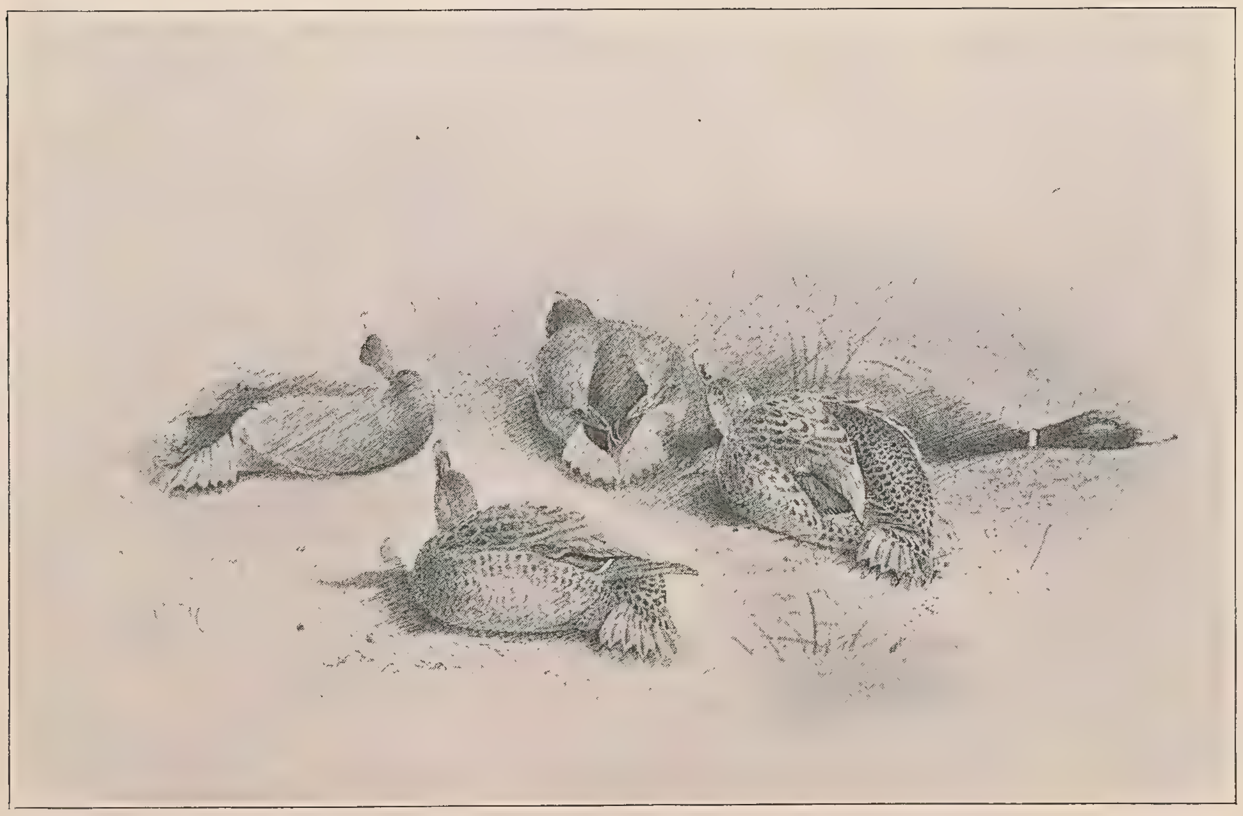
A similar trick is known to the Lapwing and the Herring Gull, who—the one on ploughed land and the other on the sea-shore—occasionally practise it in the spring, pattering up and down with their feet on the wet ground; but I have never seen any duck but the Mallard make use of this ingenious ruse. The Shoveler and the Garganey, however, have an equally clever trick, which I shall describe later on.

In winter, even as early as November, one may see on fine days a large flock of wild duck in which the majority of the birds are already paired off, but whether the pairing off at this season means anything more than a mutual regard for each other's society, I cannot say.

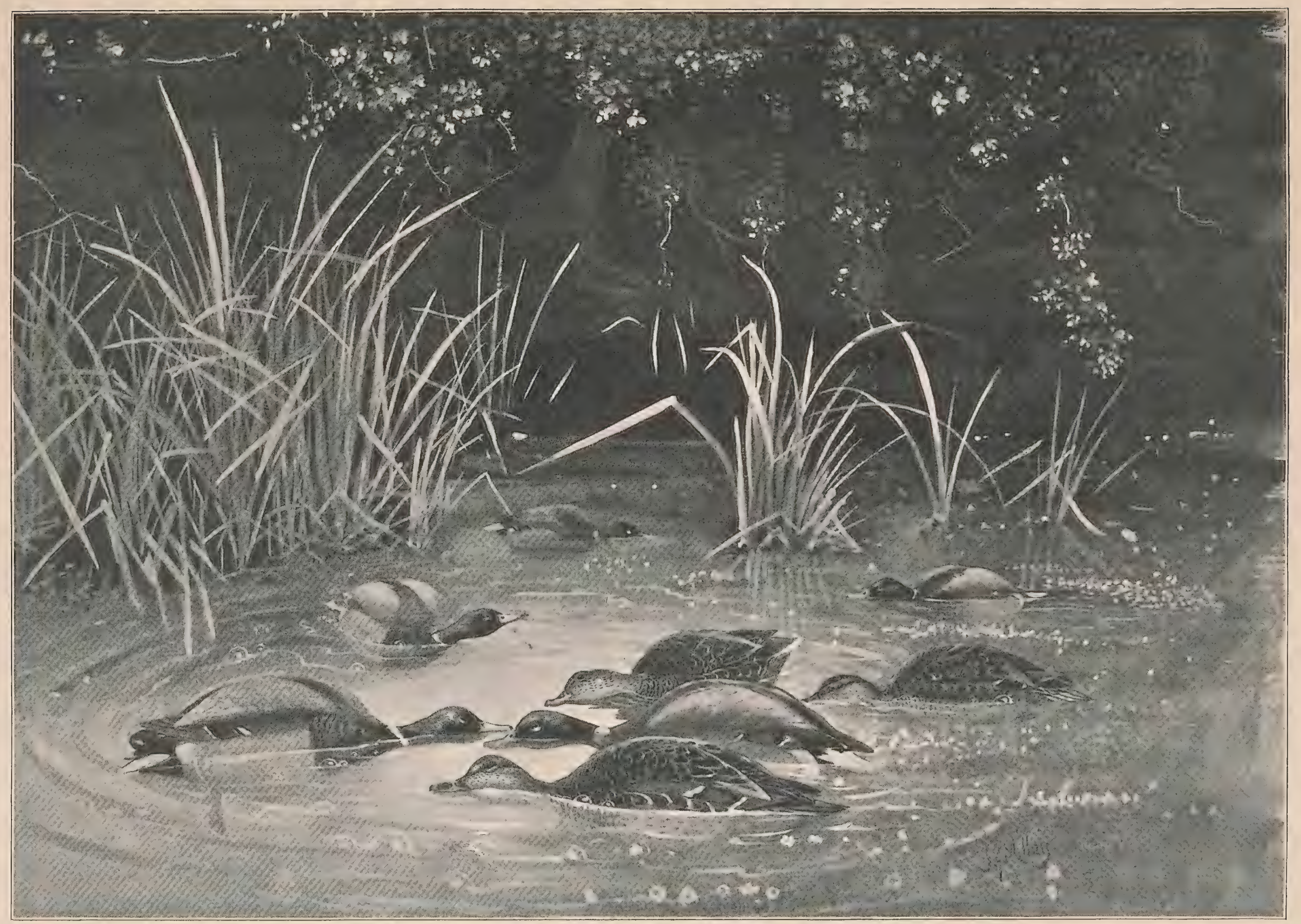
This is an interesting point in the habits of the Mallard, as one does not find quite the same thing in any other species; and did we not know the somewhat indiscriminate nature of their attentions in the spring-time, it might be supposed that two birds paired for life, or, at any rate, for some years, like the crows and eagles.



THE HAWK OBSERVED.



ON THE APPROACH OF DANGER.



THE MALLARD RUSE TO SEE AND NOT BE SEEN.

A raptorial bird is passing over, and the Mallard are lying on the surface of the water watching his movements. Should he approach closely, they will sink their bodies so as to be almost invisible.

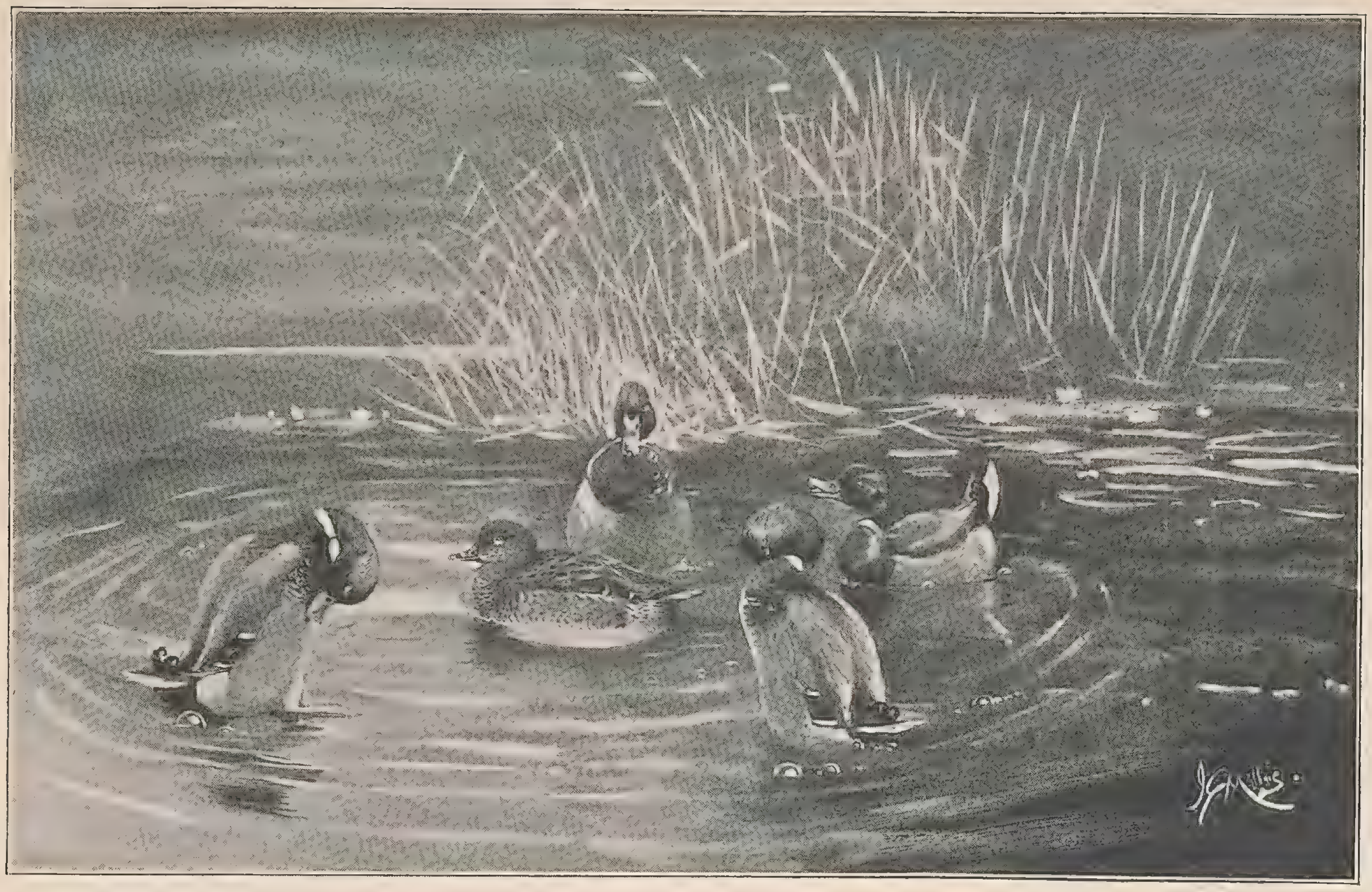
One of the most interesting places in which to watch the Mallard in spring, or in fact to study the ways of water-fowl in general, is the upper lake in front of Woburn Abbey, the Duke of Bedford's beautiful home in Bedfordshire. Natural history is the favourite hobby of the Duke and Duchess, and here in the lakes in front of the house are gathered together the most complete collection of pinioned water-fowl in the world. Every species of known swan is there as well as specimens of most of the geese and a large assortment of the most interesting of the surface-feeding and diving ducks, whilst amongst these gather numbers of perfectly wild Mallard and a few pairs of Shovelers.

On a spring morning it is most delightful to sit and watch with a glass all the strange manœuvres and modes of courtship of the different species, for the whole place is full of life and movement. As the wild Mallard are never shot in the park, they keep passing about and around the observer, sometimes in a constant procession, and so close at hand that while sitting quietly under the shadow of some sheltering bush one can fancy oneself a sort of primeval Adam suddenly placed in a paradise of wild creatures that know no fear.

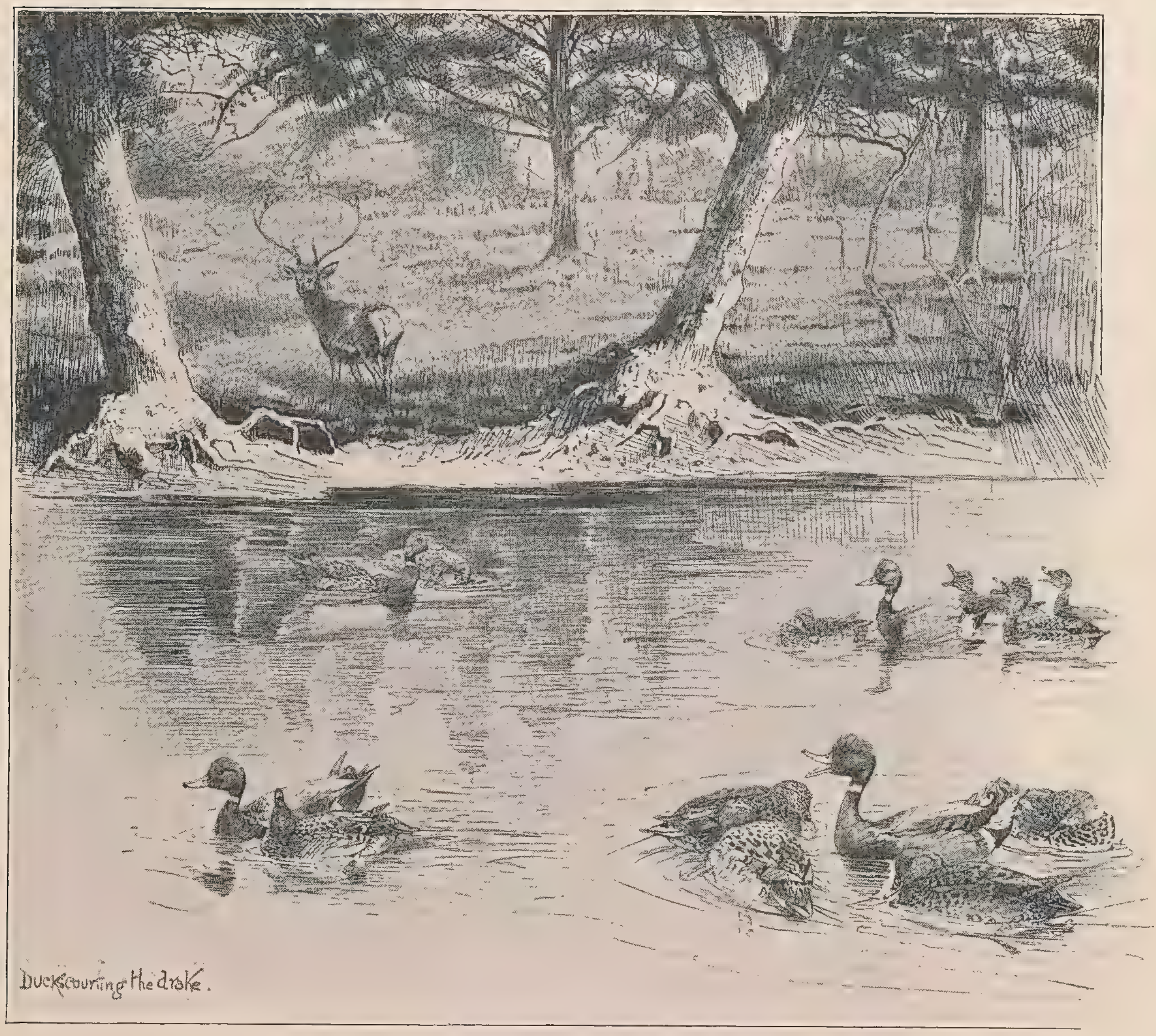
The variety of sights and sounds, appealing alike to eye and ear, is simply amazing—one of the finest examples of that 'harmony not understood' of which the whole world is full; but here the naturalist is most at home. He sees and hears and enjoys them all. Here are the Canadians, grandest of geese, 'honking' away to one another; and, mingled with their cries, one hears the low bass of the Greylags and the tenor of the Pinkfoots. From over there comes a shrill trilling whistle, a sound which a few splashes of brilliant black, white, and red indicate that a cock Sheldrake is throwing himself up and jerking his head in the air for the admiration of his wife. Elsewhere are the circling Shovelers, and five or six clamorous cock Wigeon, all vying with each other to attract the attention of one harassed-looking female who hardly knows which to choose amongst so many ardent admirers. In another place the eye rests on groups of male Pintail and Teal, all engaged in their particular form of courtship, uttering the while their musical double note. Ruddy Sheldrakes and

Egyptian geese are running along the banks, jabbering and quarrelling with every other bird that dares to venture on their self-allotted range, whilst not the least interesting of all the spring 'shows' is the quick back-head throw of the cock Golden-eye, who, for the admiration of his wife, performs this curious antic as with his foot he kicks up into the air a bright jet of water. Everywhere there is something beautiful or interesting to be seen by those who have the eyes to see, and above all, sounding like a blare of shrill clarions, come the magnificent trumps of the great American Trumpeter swans—a truly splendid call, which once heard is never forgotten.

As with other wild birds, the most interesting time to watch duck is at the commencement of the breeding season, usually very early in the spring. Courtship with the Mallard appears to be carried on by both sexes, though generally three or four drakes are seen showing themselves off to attract the attention of a single duck. Swimming round her, in a coy and semi-self-conscious manner, they now and again all stop quite still, nod, bow, and throw their necks out in token of their admiration and their desire of a favourable response. But the most interesting and amusing display is when all the drakes simultaneously stand up in the water and rapidly pass their bills down their breasts, uttering at the same time a low single note somewhat like the first half of the call that Teal and Pintail make when 'showing off.' This note, and a gentle croaking noise, are the only sounds the Mallard drake ever makes, excepting his usual call, which resembles the word 'drake.' At other times the love-making of the drake seems to be rather passive than active. While graciously allowing himself to be courted, he holds his head high with conscious pride, and accepts as a matter of course any attention that may be paid to him. A proud bird is he when three or four ducks come swimming along beside and around him, uttering a curious guttural note, and at the same time dipping their bills in quick succession to right and left. He knows what that means, and carries himself with even greater dignity than before. In the end, however, he must give in. As a last appeal, one of his lady-loves may coyly lower herself in the water till only the top of her back, head, and



MALLARD DRAKES DISPLAYING BEFORE A DUCK.


Ducks courting the drake.

DUCKS COURTING THE DRAKE.

neck is seen, and so fascinating an advance as this no drake of any sensibility can withstand. And now comes the choice of a nesting place—a serious consideration, in which apparently both drake and duck take part. And very queer decisions they occasionally come to. Their nests have been found in all sorts of places—sometimes miles away from any water. Even hollow trees or deserted crows' nests have been utilised for this purpose, and now and then the side of a tall cliff has proved a potent attraction. I have found one even amongst the bare stones on the summit of one of the highest mountains in Perthshire. As a rule, however, they are found close to the water-side, well hidden in some tuft of grass, reeds, heather or bracken.

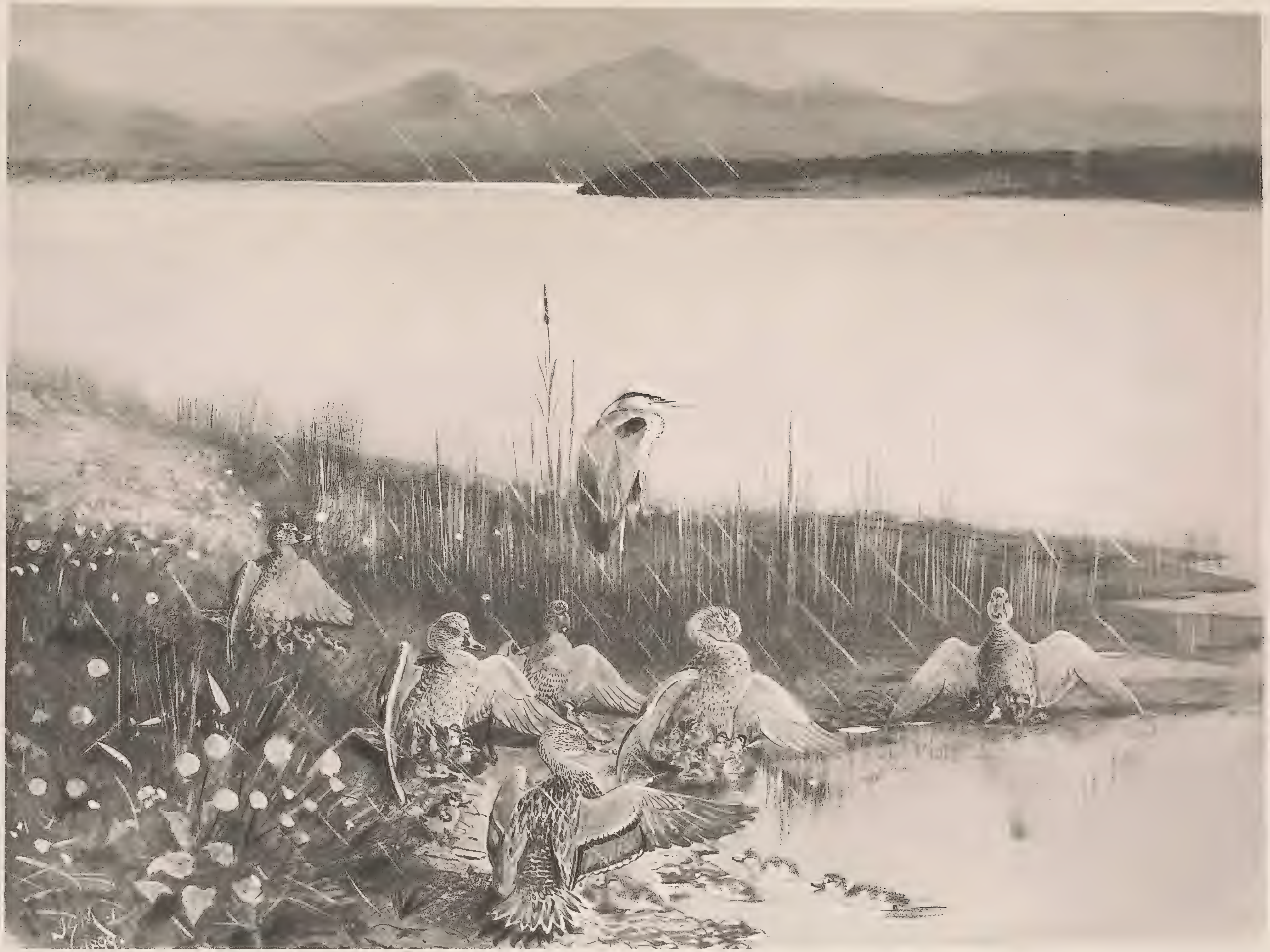
How the young descend from these lofty situations as they do without injury has often formed the subject of discussion; but this can be easily seen by taking a duckling to the roof of a house and dropping it from there on to the grass. A cruel experiment, some may say; but it is not so in reality, for the little bird, being extremely light, falls so slowly that it reaches the earth without any sensible shock, and its bones are so gelatinous and supple that no sooner is it down than it springs up on its feet and runs away without the smallest difficulty. The duck who has built her nest in some elevated position flies down to the ground below as soon as the young are hatched, and from there calls her family, who come tumbling out one after another, and fall to the earth precisely as in the suggested experiment.

It is a curious fact that nests which are placed close to the water often have little or no down in them, while those which are found at long distances away are always full of it. I have found Mallards', Pochards', and Shovelers' nests, within a few feet of the water, in which there was no down at all. If the nest be far from the water the duck begins to pluck the down from her breast as soon as she sits, and continues to do so at intervals until the process of incubation is completed. When she leaves the nest to feed she carefully spreads this covering over the eggs for the double purpose of warmth and concealment, and even while sitting she will place leaves and sticks over her back and bury her head in the foliage to avoid detection. Knowing, too, that danger is most to be feared during the day, she rarely leaves her nest except at dawn, sunset, or night.

Wherever the home may be the drake takes care to look after his mate, visiting her at least twice a day—at eventide and in the early morning; but four weeks of this (the usual period of incubation) are almost more than he can stand. By degrees his visits become less and less frequent if water be near; he contents himself with swimming about within call, while keeping an eye open for other drakes similarly engaged, and by the time the young birds are hatched he is sick of the whole thing, and away he goes, unless indeed the nest be destroyed, in which case he will return to his wife and stay with her until she is fairly settled again. Then, at latest, he takes himself off, and uniting with other liberated Benedicts, who commonly roam about in parties numbering from three or four up to twenty, he holds himself aloof from the opposite sex until late in the following autumn.

As a rule Mallards are monogamous, but if on the same piece of water one sex is in a minority during the pairing season, this rule is relaxed, and polygamy or polyandry becomes the fashion in duck society.

As soon as the young birds are hatched and able to look about they are taken to the water, where, running swiftly after the numerous insects that frequent the shallows, they begin at once to catch their own food. Adult Mallard are extraordinarily expert at catching flies. One may often see them on a hot summer day catch so swift a creature as a bluebottle as it buzzes round or past them. Now and then the mother may abstract and liberate from the mud some choice delicacy for the delectation of her family; but, as a rule, the youngsters earn their own living, subsisting entirely on such insects as they succeed in catching. They must take good care of themselves, too, for though the mother bird is very watchful over her brood, especially while sitting with them on the shore, she will stand no nonsense with any illness, real or affected. The survival of the fittest is the law ingrained in her by nature, and woe betide the unhappy duckling who dares to lag behind or show any sign of exhaustion. In the vast majority of cases its fate is sealed



Walter L Colls, Ph. Sc

Nature's Umbrella.

at once. It is either abandoned or put to death, and its executioner goes on her way as if nothing had happened, sustained by the reflection that she had been cruel only to be kind.

I have several times seen semi-domesticated wild ducks rush at a sick youngster and kill it by smashing in its skull—a circumstance that too frequently rouses the vilest passion of the duck tribe—the poor little unfortunates being finally torn to pieces and devoured by other ducks.

These birds, however, are not always so callous and devoid of sympathy with their fellows; as will be seen by the following anecdote.

Some years ago, when bent on obtaining sketches for the present work, I found a good plan was to hire a canoe on the Serpentine and drift along the enclosure where the ducks have their sanctuary in Kensington Gardens. Here the ducks behave themselves and live exactly as the wild ones do, and I was soon able to fill my sketch-books. One day an old duck with a brood of ten newly hatched youngsters, finding my boat coming nearer to them than she quite liked, set sail along the shore accompanied by all her children except one, which, cramped with rheumatism, could not keep up with the rest, but struggled along bravely some five or six yards in the rear. Greatly displeased at this exhibition of weakness, the old duck kept up a loud and continuous cry, and turned back every few yards as if to compel the weakling to hasten on; and at last, finding all her efforts in vain, she broke away from her family, dashed up to the sick one, and dealt it a blow with her bill which stretched it insensible on the water. Instantly there was a violent commotion amongst the group of ducks who were resting on the lawn about ten yards away. They quacked loudly in astonishment, and one of them, flying to the rescue, seized and bit the murderous mother with evident fury. So sudden and determined was her gallant attack that the criminal almost immediately retired discomfited, and rejoined her brood, with which she swam clean away. Now ensued a scene of the most touching and pathetic character. The rescuer, betraying unmistakably her deep concern for the little one now nearly dead, turned it over with her bill and did everything she could think of to restore it to life. But in vain; its little feet could only helplessly paddle in the air, and so, as a last resource, she tenderly picked it up in her bill, swam ashore and gently placed it on the grass. Though by this time the duckling was quite dead, the kind-hearted rescuer continued to push it gently, and occasionally lift it with her bill, while quacking loudly, and exhibiting all the tenderness and solicitude of a mother for her lost child. At last, finding her efforts at restoration were of no avail, she walked sorrowfully round and round the dead body, expressing by piteous flapping of her wings the depth of her despair. I am inclined to think the poor thing had lost her own brood, for she had all the 'rough' look of one who has been sitting.

And now, who can doubt that birds differ in disposition and temperament as much as human beings, and that, apparently cruel as some of them are, others are endowed with a sense of affection quite touching in its depths of constancy? Shall we not say, too, that amongst the feathered tribe the criminality of certain actions is as well understood,[1] and often as deeply resented, as amongst ourselves? For myself, after witnessing such a scene as this, and others of widely different character that have come under my notice, I cannot possibly entertain a doubt on the subject.

The life of the wild duck from its earliest infancy, lived as it is under conditions eminently favourable to health and hardihood, might lead one to suppose that their young would be endowed with greater strength of constitution than the chicks of the delicate land fowl; but such is not the case, at any rate in the first few days of life. At this period they are, on the contrary, very delicate, and particularly subject to diseases arising from the very elements from which the survivors gather their strength; for, though perfectly at home, warm and dry, on the surface of a lake, a cold shower of rain or hail will almost as certainly destroy their lives as a charge of shot. Knowing this, the mother duck never fails to betray her solicitude for her young when, while cruising on the water, they are surprised by a spring shower. With all possible speed she makes for the bank, and then, gathering

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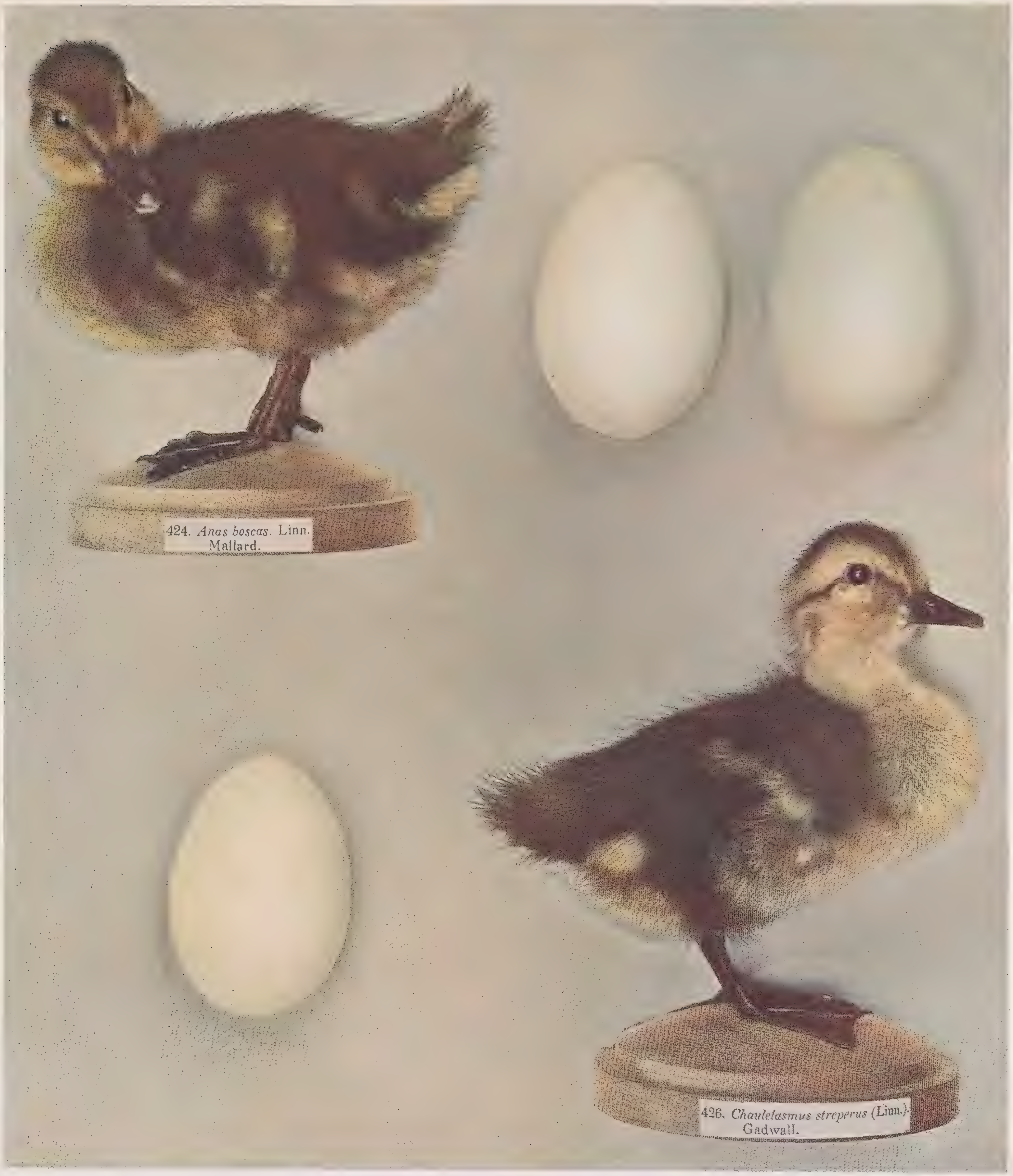
[1] See page 84.

PLATE II.


424. *Anas boscas.* Linn.
Mallard.
426. *Chaulelasmus streperus* (Linn.).
Gadwall.

MALLARD.

Young in down. Age 1 day.
Size of life.

Extreme types of the eggs of Mallard. Size, 2·25 by 1·6 inches.

Egg of the Gadwall.
Size, 2·1 by 1·5 inches.

GADWALL.

Young in down. Age 1 day.
Exact size of life.

her brood together, and turning her back to the pelting storm, she spreads out her wings so that not a single drop may fall upon them. I have seen no less than ten wild ducks all sitting together in a shower protecting their offspring with the umbrellas with which Nature has provided them.

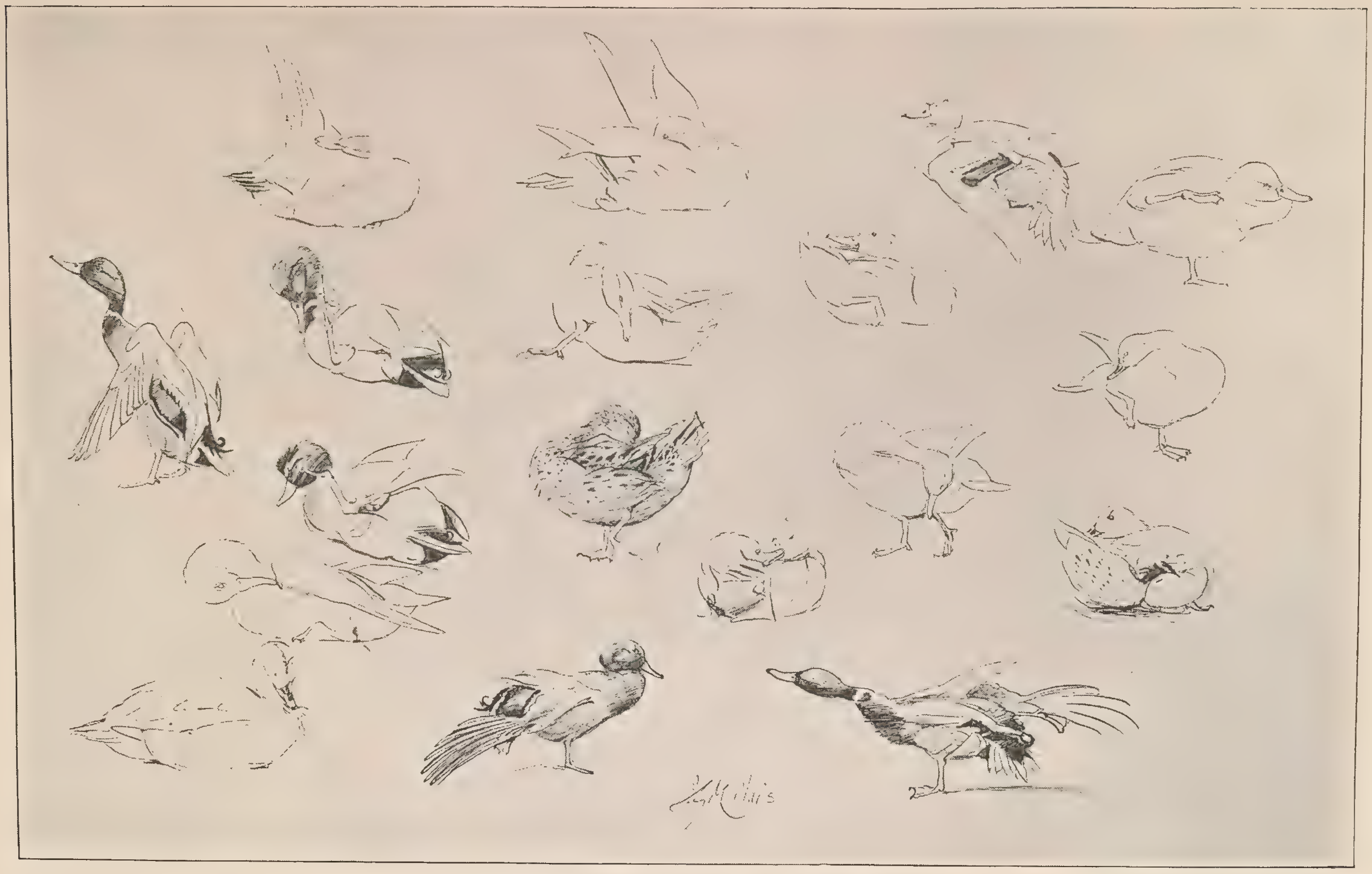
If you constantly watch female wild ducks with young, you will notice how highly strung is their sense of intelligence and observation at this period of their lives, and how keenly discriminating their judgment of human character. Londoners need go no further than the Round Pond in Kensington Gardens to satisfy themselves on this point. Let them by slow degrees win the mother's confidence so far that she will allow them to sit close to her, and they will presently notice how she will classify and distinguish all the people passing to and fro, according to her judgment of their friendliness or otherwise. Almost every passer-by is carefully noticed—the majority probably without raising her suspicion; but, suddenly (it may be afar off), appears some individual whose advent is not to her liking, or whose dog is objectionable in her eyes (even different breeds of dogs are classified in her mind) and instantly she makes a move towards the water, more or less rapid, according to her estimate of the danger.

When there is a hot sun and a strong breeze, and the families are half grown, you may see them swimming together against the wind and catching the insects, after which—when their somewhat voracious appetites are appeased—they will go to sleep, drifting down wind from one end of the lake to the other. At such times family parties often unite and drift together; but, when feeding, a wild duck with young is generally somewhat jealous, and will not allow other ducklings to follow her. This is curious, for both the Eider and the Sheldrake females habitually take charge of the children of their neighbours; sometimes on the coast you may see an old Eider duck followed by a regular kindergarten.

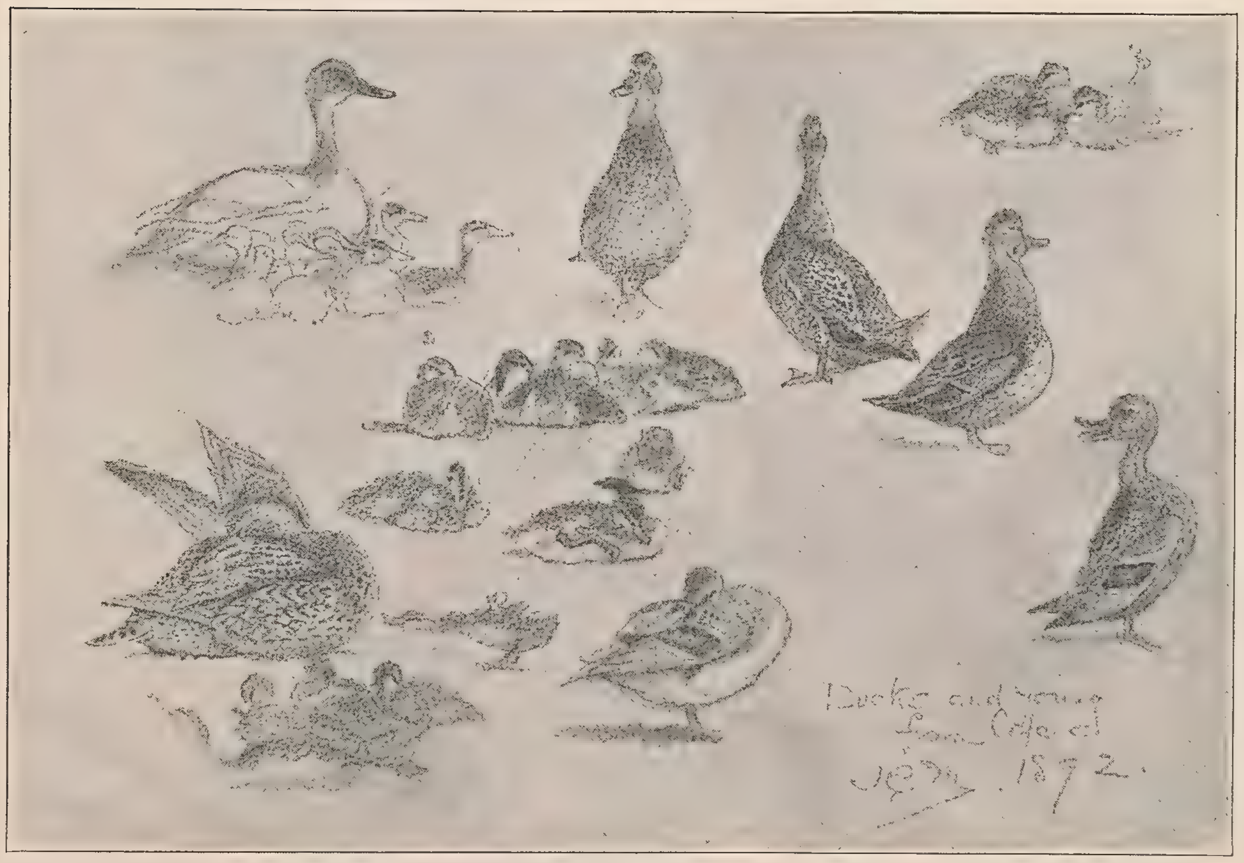
Where ducks are protected, one often sees them, when they have paired in the spring, leave the water after a shower of rain and repair to the open grass land; the sunshine then brings to the top of the wet herbage all the slugs and insects which generally harbour round and about the roots, and the ducks judiciously avail themselves of so pleasant and handy a meal. Later in the year, too, they may often be seen with their half-grown broods leaving the water and busily pursuing the same quest, though at that time the expedition is by no means without danger, for vermin of various sorts are then about, and apt to turn to their own account the example set by the ducks. I once found a whole family of ducks—ten of them—massacred by one or more stoats or other vermin.

Beyond a doubt the most destructive and persistent persecutors of the young and eggs of the wild duck are the carrion and hooded crows, who annually cause greater havoc than all the other vermin put together. On Loch Leven these pests are especially numerous. Mr. P. D. Malloch, who constantly fishes there, tells me that one day he saw a carrion crow remain for an hour perched on a dead tree, beneath which was a wild duck sitting on her nest. During this time the crow three times attacked the duck and endeavoured to drive her off the nest by swooping down and pecking at her; but each attempt was frustrated by the gallant little duck standing up on her nest and presenting her breast to the foe. A single-handed encounter like this is undoubtedly rare, for carrion crows nearly always hunt in pairs; and then their cunning and dexterity in engaging a mother with young ones nearly always meets with success, the duck being too clumsy in her movements to defend all points of attack.

For many years past two pairs of carrion crows have annually nested on the north and south sides of the Serpentine in Kensington Gardens. During the summer they live almost exclusively by their forays on the eggs and young of the London ducks, and being unmolested are very bold and systematic in their attacks. One day a pair came and harassed a family party quite close to me, thus affording me an interesting insight into their mode of procedure. Mr. Crow advanced, hopping and flitting close to the mother and young ducks, and soon succeeded in getting the former to chase him; meanwhile, quick as thought, Mrs. Crow pounced upon a youngster and made off.



ATTITUDES OF MALLARD PREENING.


Ducks and young
from Orford
JGM. 1872.

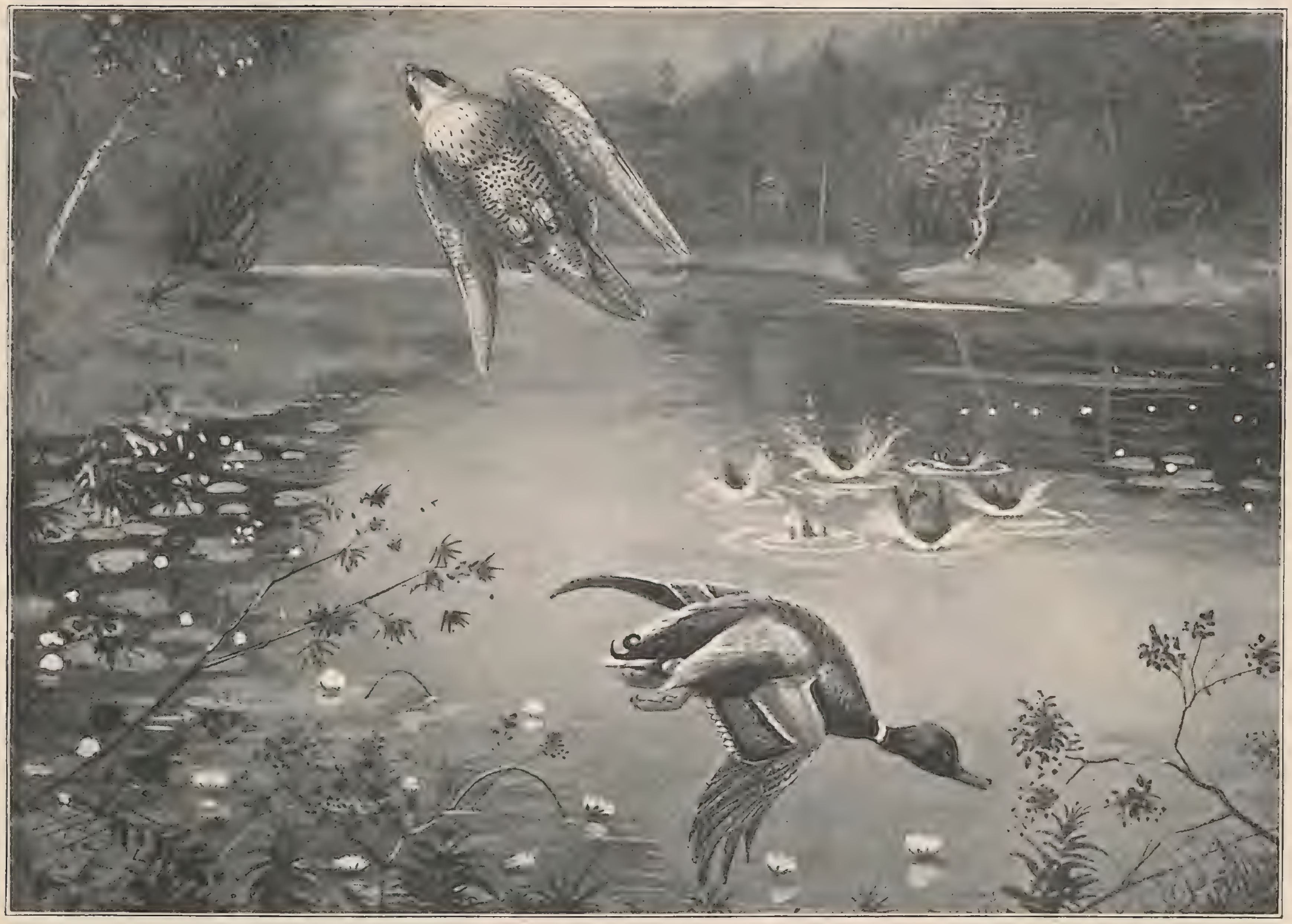
DUCKS AND YOUNG. FROM LIFE.

The same day I saw them repeat this trick, and they no doubt carried it on all through the season with undiminished success.

Later on I shall endeavour to portray the Mallard as they appear at different times, describing in detail their various changes of plumage; but here I may say that about June 20 commences the annual change into the eclipse plumage, and while this is going on, the drake, like the Blackcock and many other birds, gradually loses his gorgeous attire, and with it his pride in himself, his gallantry and his courage. His whole nature is changed; he becomes shy and even cowardly. And now, profiting by the occasion, the perky, half-grown youngsters begin to assert themselves in a way they never dared to do before. Without a moment's hesitation they will turn the old birds off their resting-places, or chase them from their feeding grounds; and that with absolute impunity, not one of the poor bedraggled old things daring to resent the impertinence. As July passes away the old drakes become more and more shy in their habits, and are only to be seen far out on open sheets of water, from which small flocks of them rise on the slightest alarm, and towards the end of the month so conscious are they of the sorry figure they cut, that they hide by day in the great reed beds which are to be their secure retreat during the first fortnight in August, when the moulting of their primaries renders them incapable of flight. If their haunts be assailed in August, these old drakes are exceedingly cunning in eluding the vigilance of both men and dogs. Like the old stags who, in the summer-time, when their horns are growing, make their retreat in the plantation nearest to the keeper's house, they commonly consort together in a reed bed entirely surrounded by water, and as near as possible to a human habitation where their presence would least be suspected. Only when September comes in do they begin to take heart again. Their full powers of flight are now restored to them, and as recoloration and new feathers come in they once more take a pride in their appearance, and gradually begin to consort again with some of the old females and the far-advanced young ducks which have been hatched early in the year. Thus as the year progresses the usual winter flocks are formed.

The disposition of the Mallard is equable. He is neither particularly quarrelsome, restless, nor sedate, and though on the whole he probably spends more time on the wing than any other surface-feeding duck, yet, in the spring, he does not fly about nearly so much as the Shoveler, who, in windy weather and during the day, is almost constantly in the air. His flight, though heavy, is rapid and well maintained, and except during bad weather and the usual flighting hours when darkness necessitates a closer inspection of the land, is on a fairly high plane. In unusually clear weather he will sometimes drop almost perpendicularly from on high straight on to his feeding-ground. Though both in range and quickness the eyesight of all ducks and geese is far superior to that of man, and is indeed most remarkable, yet I doubt if Mallard have such very extraordinary power as Wigeon or Brent geese. They certainly do not seem capable of 'picking you up' at such a long range as the latter, though, on the other hand, it is possible that they intentionally refrain from noticing you. Watch wild ducks in confinement, how they notice every large bird that passes over. Nothing soars through the heavens even at the extreme range of a telescope without attracting their attention; yet with all their shrewdness they often mistake a harmless bird for an enemy. A duck may be seen glancing upwards; then, turning her head on one side to get a better view, she will often call the attention of the others to what she has discovered, especially if she imagines it to be a raptorial bird of some sort. Many a time when in London have I noticed this, and taking the hint myself, have seen herons and large gulls passing over which would otherwise have escaped my attention. At other times large birds have passed at such a height that, even with a powerful telescope or glasses, I have been unable to find them, though convinced by the attitude and calls of the ducks that they were there. When ducks are about no gunner can hope to escape their notice unless he conceals himself under some form of covering, or lies perfectly still with his face turned to the ground. Even then they may probably see him, but, failing to take alarm, may pass by at close range.

Mallard, being peculiarly liable to the attacks of falcons, are constantly



MALLARD ESCAPING FROM A PEREGRINE.

on the look-out for them, and very interesting are their movements under such circumstances, as shown in the series of sketches from life. Should one of the party resting on shore observe a peregrine, at some distance, advance in their direction, he at once gives the alarm by calling his companions, who spring to their feet and strain their necks to obtain a better view. Should the falcon continue to approach, their first impulse is to crouch close to the ground, as a grouse or partridge would do, hoping thus to remain unobserved; but on the enemy coming still nearer they do not seem to share the confidence of game birds who, in like case, would lie down, trusting to the natural blending of their plumage with the surrounding objects. Instead of this, they get up and rush in confusion to the water and, immersing themselves up to the neck, lie there with heads and necks outstretched, in the curious circle which I have endeavoured to depict. This clever manœuvre gives them absolute safety as well as a perfect view of their surroundings on all sides, and I have found them act in exactly the same way under an artificial kite.

The peregrine, practically their only enemy amongst the raptorials in Scotland, never strikes duck when passing over water, though he may occasionally be seen chasing and 'stooping' at them when he has failed to kill them over land, possibly for the sake of practice, and he is somewhat fond of making trial stoops. If a flock of duck see him coming, and they are at the time flying above a sheet of water, they will take wonderful headers from almost any height to avoid his talons. The splash caused by their striking the water can be seen at a great distance, so violent is the impact, and the wonder is it does not kill them. I once saw a female peregrine make a magnificent stoop at a pink-footed goose over the waters of Loch Leven. She knocked her quarry headlong into the water, and then immediately abandoned it; so probably this was only a bit of sport on her part. The goose, appearing to be little the worse for it, rose presently and flew away.

The constant attacks of the latter-day wild-fowler armed with weapons of precision have made practically all the surface-feeding ducks night- instead of day-feeders. That it is natural for them to feed freely during the hours of light is shown by the fact that in places (few and far between though they be) where Mallard and Wigeon are not subject to much persecution, and where the tide is suitable, they come by day in their companies to the feeding-ground.

Mallard do not gather together in such large flocks, nor feed in so compact a formation, as Wigeon, except in the very worst weather, when they will mix indiscriminately with Wigeon, Teal, and Pintail. In fact, the result of a good shot with the punt gun in the best fowling weather sometimes shows all four species. I have seen as many as 500 Mallard sleeping close together and floating down with the tide on the Moray Firth, but fifty is commonly considered a large number to find at rest by day on the sea. A big flock of them may occasionally fly in to feed on some favoured spot, but they soon scatter all over the locality in pairs and little lots; and so, when alarmed, they do not rise together in a compact formation like Wigeon and Teal, but each little group takes flight in succession.

Such naturally intelligent birds as Mallard know very well when and where they are protected. On the river outside the late Mr. Cecil Smith's place at Wiveliscombe, in Somerset, the wild ducks, being greatly harried, were quite unapproachable, and yet I have seen them, when passing over the lake in the park, suddenly drop from a great height and alight almost at my feet, and there clamour for food. Another good instance of the success of protection is the lake by the stables at Monymusk, Sir Arthur Grant's beautiful place in Aberdeenshire, where any autumn or winter evening one may see from one to two hundred perfectly wild Mallard sitting on the little reedy island or preening themselves in the water. When I was there in 1895 about a hundred of these charming birds were on the pond, and, on the coachman calling them, they came off the water, walked out to us in the stable-yard and received a good feed of oats. The following day, when out shooting with Sir Arthur, we found the duck at other excellent haunts in the vicinity as wild and 'tall' as the most enthusiastic shooter could desire.

About twenty years seems to be the limit of life of the surface-feeding ducks (I have known Mallard kept in confinement for that period), but if a Mallard drake should live so long he will occasionally lose the white collar on the neck, whilst duck cease nesting at fifteen or thereabouts, and, as soon as the fertility of the ovaries declines, partially assume the plumage of the drake.

Of late years the artificial rearing and driving of birds for shooting purposes has been brought to great perfection. Pheasants, partridges, and grouse have not declined in popularity, and never will as long as they take people out into the open air; but now sportsmen are every year recognising the facility with which Mallard may be reared artificially, and induced to fly in a certain line over guns. I think that Sir Richard Graham, of Netherby, was the first to successfully organise these big duck shoots, and he has certainly achieved great skill in placing the birds above the guns at a respectable elevation. Over two thousand Mallard were killed at Netherby in two days during this autumn (1901) and The Mackintosh at Moy has also killed as many as 900 in one day.

PLUMAGE OF THE ADULT MALLARD DRAKE

Spring plumage.—Weight 2½ to 3 lbs.; length 23 inches; wing 11 inches. Bill yellowish-green; toes, webs, and legs, orange. Head and neck bright green, trending to black on lower neck, which is surrounded by a white ring. The secondaries of the wing have a greenish-purple band edged with black, and above and below white; upper wing coverts slate; rump and vent bluish-black. The four upper tail coverts are black, whilst the breast and lowest part of the back of the neck are deep chestnut. The back and upper scapulars are grey, finely vermiculated with black and brown on the edges near the centre of the back. Long scapulars grey and brown.

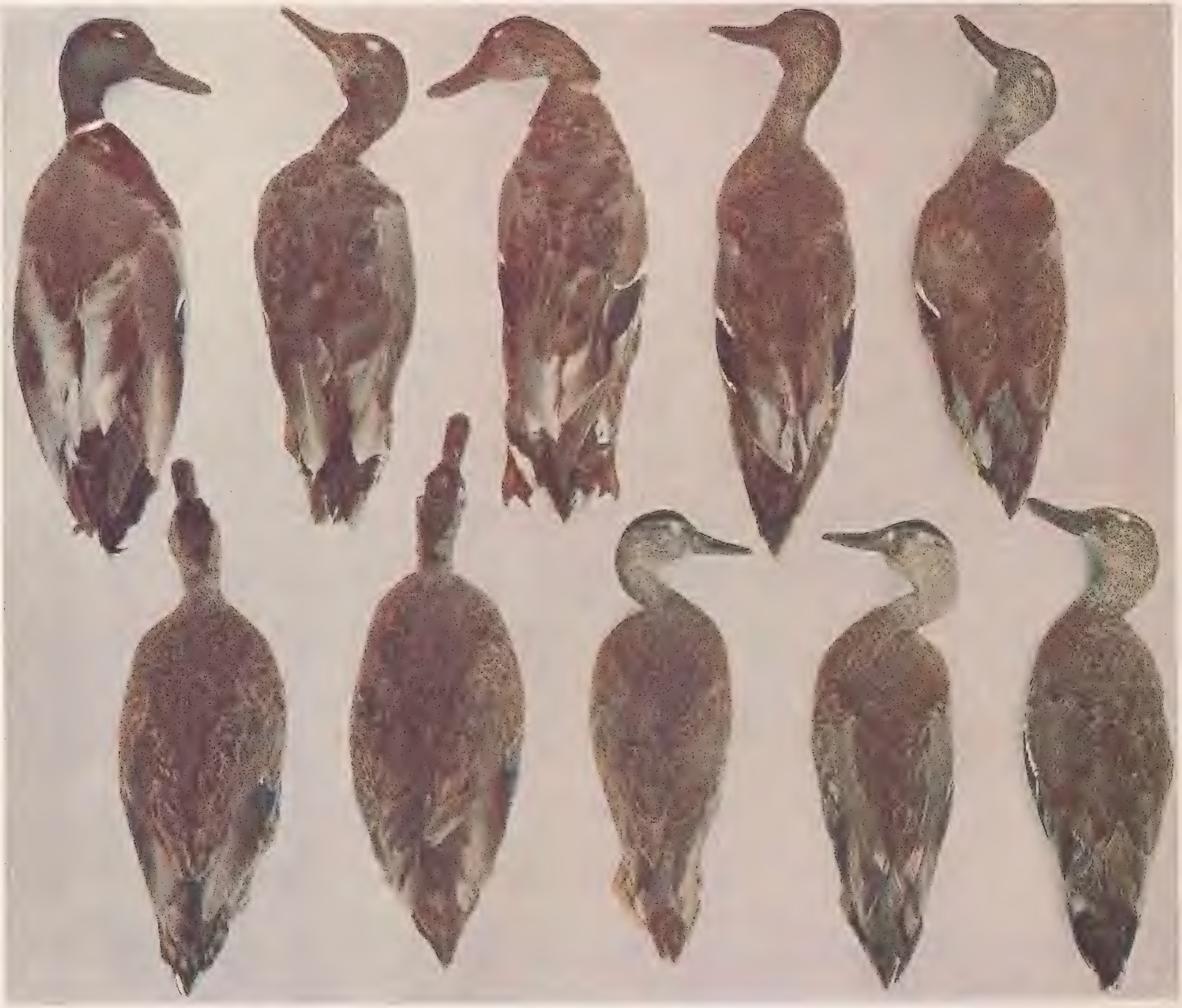
CHANGE OF PLUMAGE OF THE ADULT MALLARD DRAKE FROM THE SPRING DRESS INTO THE ECLIPSE, AND ECLIPSE INTO THE WINTER DRESS

The intricate change of plumage of the adult drake from the spring dress into the eclipse, and from that again into the winter dress, though one of the most interesting features in all duck life, has as yet remained untouched by the naturalist. The time that is required to study the subject thoroughly, the necessity of keeping alive a large number of birds, and the indispensable labour of collecting a very large series of their skins, have probably deterred others less fortunate than myself from attempting a solution of the question as to how these changes take place. For several years I have made this a special study, the result of which I shall now endeavour to lay before my readers.

During the months of May, June, or July, all the surface-feeding drakes undergo a remarkable change in both colour and feather to a plumage which more or less resembles that of the female, though there are really many points of difference. It is no more correct to say that the drake assumes the plumage of the duck than that he moults *directly* into it. For the assumption of the new dress in June or July is not entirely due either to a mere change of colour without moult or to a renewal of feather, but is at first a combination of both. The general results of my observations go to show that between June 15 and October 10 (the period of the eclipse plumage) two-thirds of the Mallard's feathers (namely, those of the head, neck, breast, and parts of the back and scapulars) undergo a *double moult*, that is to say, the feathers are actually shed twice; whilst one-third of them (namely, the long scapulars, wings, tail and vent feathers) are renewed only once; and during all this time, both in the shedding of the old feathers and the assumption of the new, there is in progress a constant sympathetic change of colour.

The strange loss of beauty which, for a time, the drake undergoes is an extraordinary provision of nature. Why should he be shorn of his trappings and lose his attractions when so many other families of birds moult directly

PLATE III.



MALLARD. Backs.

Change of the Adult Male from Spring into Eclipse plumage, and again from the Eclipse into Winter dress.

1. Full Spring dress, July 1st.

2. Drake in rapid moult from Spring to eclipse, July 6th. In this specimen the wings were also in full moult, and the bird unable to fly.

3. Showing the last of the Spring dress. Wings not yet moulted, July 8th.

4. In full Eclipse except the wings, which have not yet moulted. August 1st.

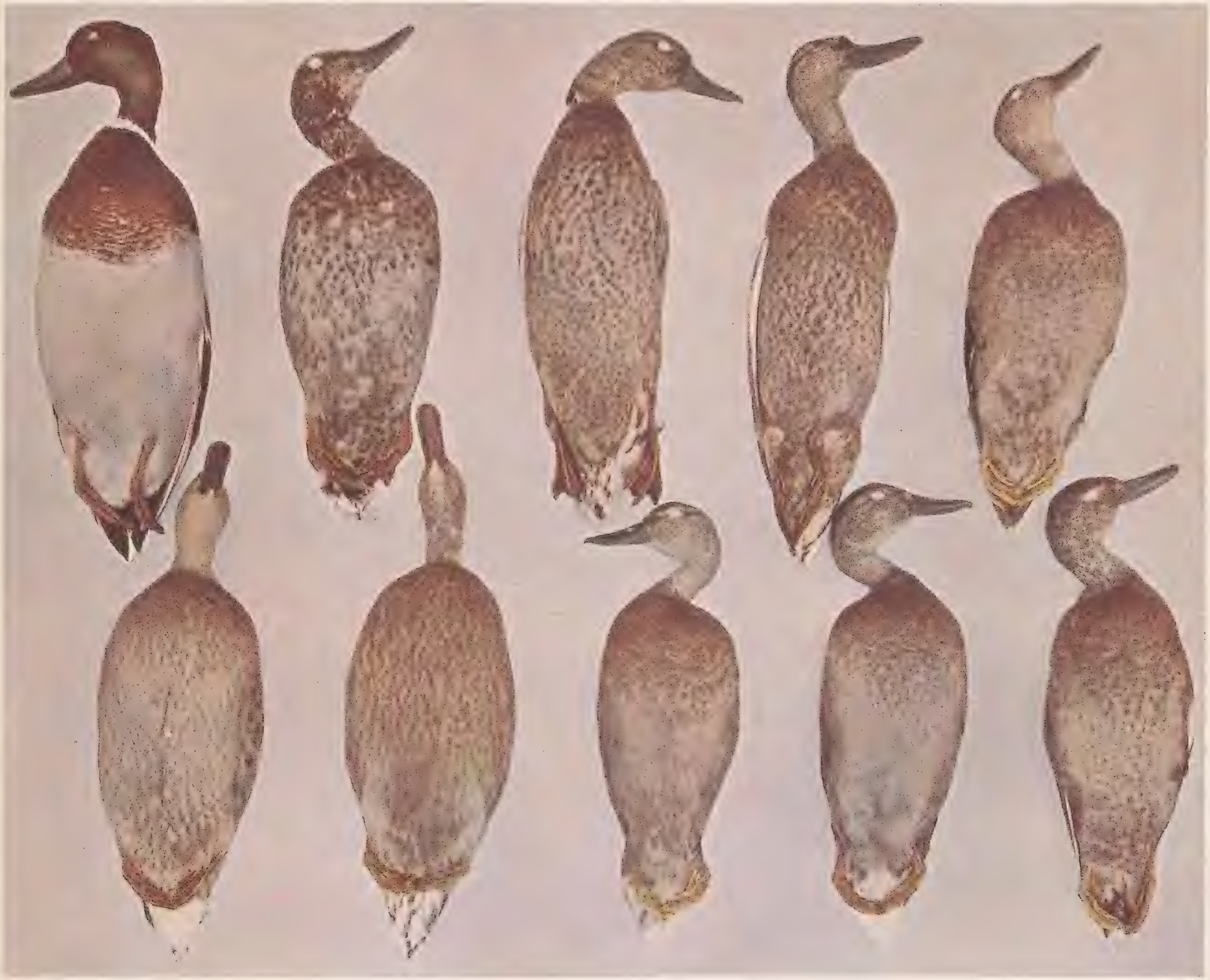
5. Full Eclipse, showing new wing feathers. August 10th.

6, 7, 8, 9. Full Eclipse, dresses of various types. August.

10. Colour change and moult commencing September 10th.

(*For continuation see next page*).

PLATE IV.



MALLARD. Breasts.

Change of the adult male from Spring into eclipse plumage, and again from the eclipse into Winter dress. Same birds as on opposite page.

1. Full Spring dress, July 1st.

2. Drake in rapid moult from Spring to eclipse, July 6th. In this specimen the wings are also in full moult and the bird unable to fly.

3. Showing the last of the Spring dress, wings not yet moulted. July 8th.

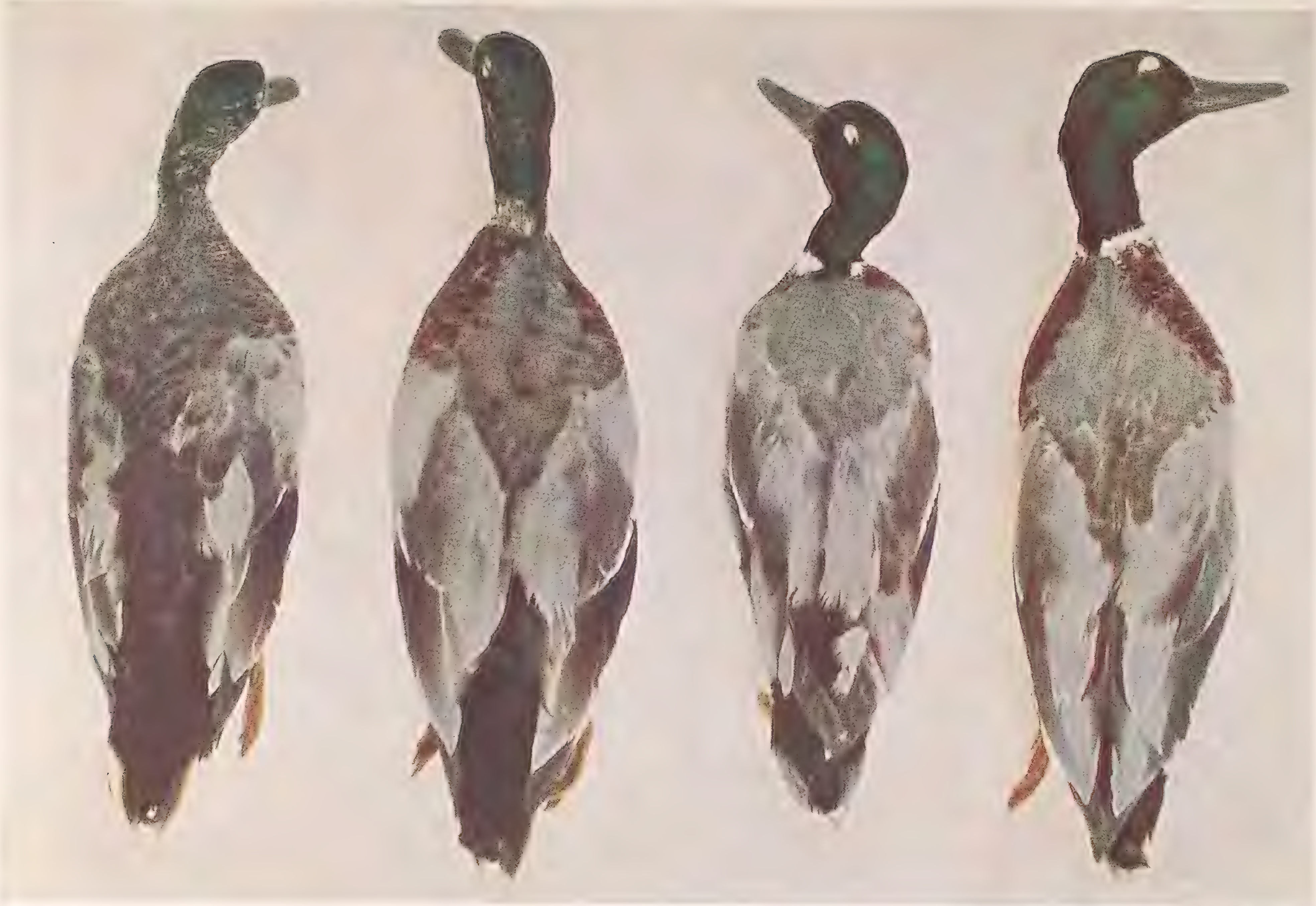
4. In full eclipse except the wings, which have not yet moulted. August 1st.

5. Full eclipse showing new wing feathers. August 10th.

6, 7, 8, 9. Full eclipse, dresses of various types. August.

10. Colour change and moult commencing. September 10th.

PLATE V.

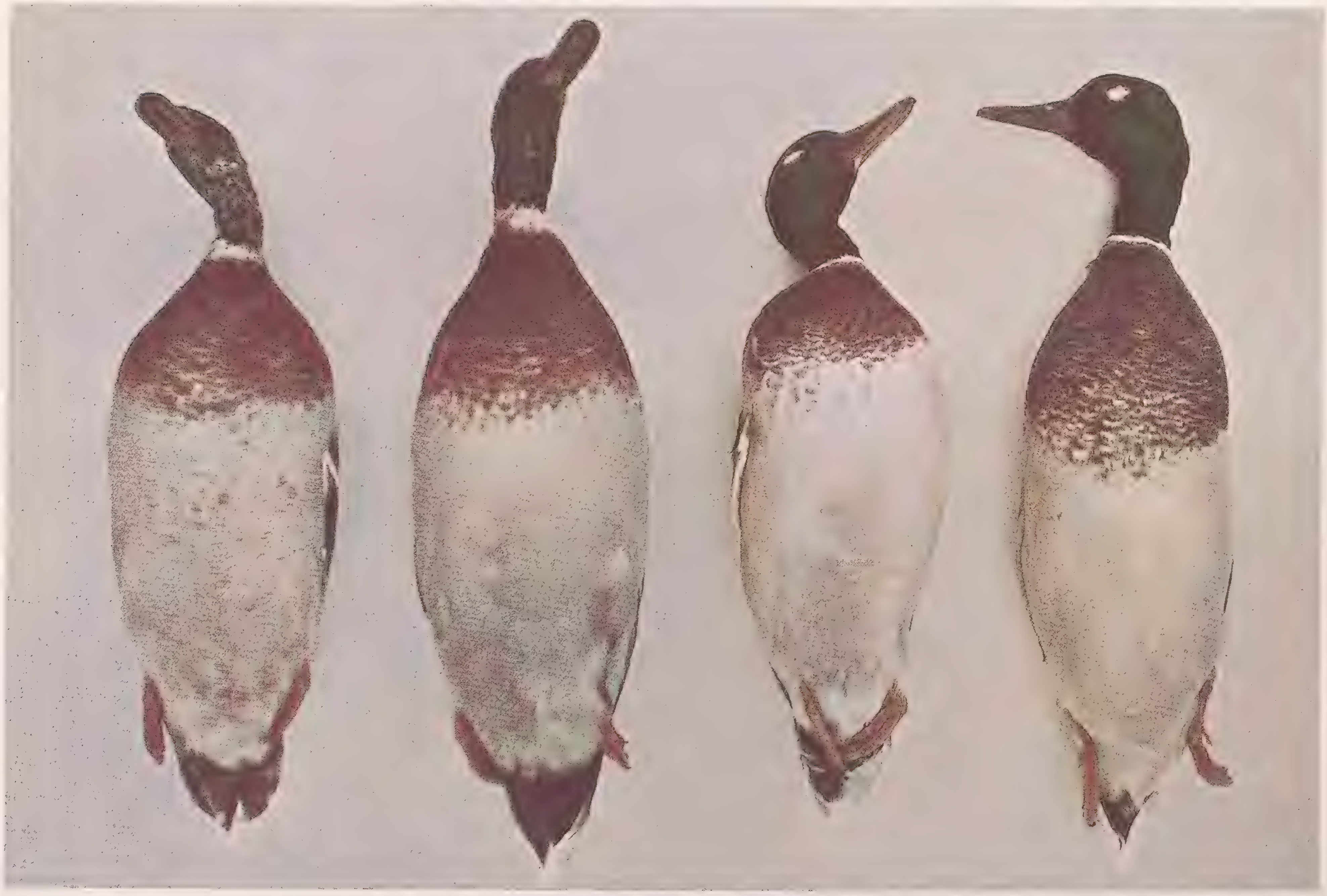


MALLARD. Backs.

Change of the Adult Male from Spring into Eclipse plumage, and again from the Eclipse into Winter dress.

(Continued from previous page.)

11. October 1st.
12. October 10th. Nearly complete.
13. October 20th. Complete winter dress.
14. December. Full winter dress, modified and toned down.



MALLARD. Breasts.

Same birds as above.

from their best clothing into their best again, unless it be that this change of colour, blending so remarkably as it does with that of the dying reeds, is necessary to ensure his safety in the fortnight of practical helplessness which takes place in August?

That, no doubt, is the explanation of this interesting circumstance, unless, indeed, some mysterious analogy may be found in the habits of the human race in certain parts of the world. In countries so far apart as Corsica and China the custom is, and has been from time immemorial, for a man to take to his bed as soon as his wife retires for what is commonly known as her confinement, and to remain there, not only during the interesting period, but long after the patient has risen and resumed her household duties. There, shyly and with a certain sense of humiliation, he receives the congratulations of his friends, while he himself is the subject of sympathetic pangs which doctors solemnly assert are not wholly imaginary. Perhaps, when we can explain the mystery of the *Couvade*, we may be able to say something more about the metamorphosis of the drake. Let us look at it in three different stages.

Stage 1.—In England as early as May 20, and in Scotland about July 1, the cheeks of the Mallard drake show the first sign of the autumnal change. If you pick the bird up and closely examine his cheek feathers you will notice that they have grown to their fullest extent, and that, from the root of the quill to three-quarters of the way down the feather, the dark colour has changed to a pale straw, only the end remaining dark green. Look now on top of the head; there, too, a slight change is noticeable. During the first fortnight of period embraced in this stage there is no real moult of the head, but only a change of colour, while on the body an odd, new, brown feather may possibly appear on the top of the scapulars. Otherwise, there are as yet no new feathers *on the surface*, though numbers are now forcing their way outwards, and the old feathers are just beginning to fall. In Stage 1, the colour-change often extends as far down as the white collar, which becomes grey and brown just as it is about to give place to a new one.

Stage 2 (June 30, approximately, in England, and July 10 in Scotland).—The general moult has now set in in preparation for what is known as the eclipse plumage. The feathers over the whole body except the wings are dropping and being renewed. Cheek feathers, which have already changed colour to autumn tints, are now falling out, as well as the longer bronze feathers on the top and back of the head which have hitherto undergone little or no change. This, too, is remarkable—that while for the most part the feathers now coming in are in colour pure brown, as we see them in autumn, there are frequent examples (as in the feather figured facing page 22) of the new feathers coming in *exactly of the same colour as those of the spring plumage which have just been moulted.* This is particularly noticeable amongst the feathers of the breast and rump. At a first glance the observer, on noticing the light grey feathers on the breast of the bird shown in Plate IV., would imagine that they were the remnant of the old plumage which has not yet fallen. Such, however, is not the case; they are, in fact, fresh feathers which have come in concurrently with the brown spotted ones, and will in the course of a week change their colour completely to that of the others around them. Many of them, if they do not come in pure grey, appear, by way of compromise, with their edges ribbed. At the beginning of this stage (June 30), the tail is generally half-moulted, the upper central feathers new, and the outer old and about to drop, but almost changed in colour like the new ones.

About a week or ten days after June 30, we may say that the drake has to all intents and purposes completely changed to his autumn dress, for his brown dress is all new except his wings, which now begin to moult. When, at last, the quill wing-feathers begin to fall, they do so with extreme rapidity—I have known them all come out together in one day, the new flush starting at once.[1] Sometimes they are cast before the drake has entirely assumed his brown dress; but that rarely happens.

The most important fact to be borne in mind in all these various changes, from June to October, is that, though the general colour-change is sometimes rapid, there is nothing sudden in the general transmission of one stage of plumage to another. At the beginning of Stage 2 (*i.e.* early in July in Scotch birds figured) when the new feathers have come to the surface we see a wonderful power of control on the part of the bird itself over all the old feathers which are still interspersed amongst the plumage—a power of blending or sympathetic change to meet the new and more sombre colour scheme. To the very last moment of their attachment to the bird *these old feathers are alive to colour transmission.* Hence, in passing our hand over the plumage of an old drake at the beginning of this stage, that is to say, when he is in full actual change, we are at first surprised to find numerous brown and barred feathers apparently of the new eclipse plumage coming away under our touch; but in reality these are old feathers which have changed colour, *often in the very last day of their existence.* For these reasons I am convinced that a bird has full power to control the moult as it will, and also infuse or withhold colouring matter as it thinks necessary. Except as to the wings (which grow slowly and pass through the ordinary single moult of all other birds), the whole plumage now remains dormant for a month; and so we pass to Stage 3, when the movement towards the winter dress commences.

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[1] Surveying the whole moult, there is a rule that the feathers fall and are renewed in patches, but this rule has its exceptions, for sometimes the moult is simultaneous over the whole plumage.

Stage 3 (August 12, Scotland).—Save that the wings are now complete, there has been up to this date no external change in the bird since July 6; but now a big move in the plumage is about to take place: the eclipse is to be exchanged for the plumage of winter. The method of this transformation is indeed most remarkable. Take the vent for instance. The new feathers, instead of coming in black, as we should expect in a clean moult, as this is, arrive in all colours, from sandy-brown, with dark grey or black spots, to *pure white.* White-vented old drakes, indeed, are not at all uncommon at this date, and it certainly does seem strange that the birds should bring in a new set of feathers of a colour which we know will, in a fortnight at latest, change to its exact opposite. Another change now commences; all the new feathers on the upper chest begin to change colour, displaying the first tints of that splendid chestnut-brown which is afterwards one of the chief glories of the drake's winter dress. This change takes place at first very slowly, but in September its progress is more rapid, synchronising with the change of the spotted feathers all down the breast, which gradually lose their spots and change to the grey ones of the full winter dress.

The feathers on the back also change from their autumn to their winter dress, and this more suddenly than those on the breast; and it is not at all uncommon, about the end of August or beginning of September, to see the full winter feathers coming in, in full colour, and without any pretence at compromise. Pure grey feathers begin to appear amongst the brown ones, and, from the lower back to the tail, jet black ones, whose outer edge is only faintly marked with brown, come in, in full colour. The raggedness of these new winter feathers is often remarkable.

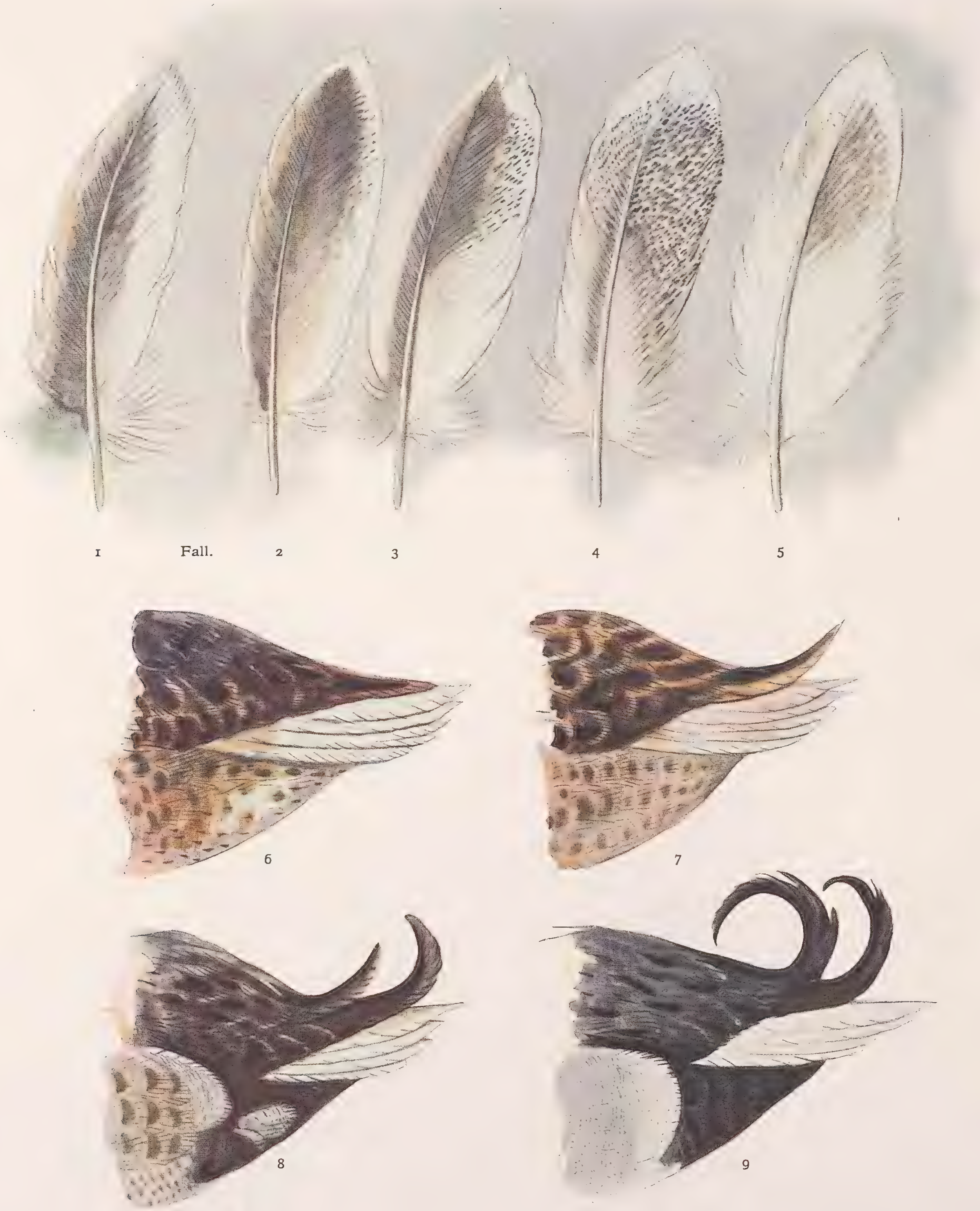
And so the change goes on by regular steps from August 12 to September 30, when the whole process is completed.

The further the season advances the nearer perfection are the new feathers that come in, and as the whole plumage approaches its full completion there is but little *colour-change* taking place, except in the tail and long scapulars and tail coverts. Such brilliance of colour as is now added is formed by the accession of a large number of new, perfectly full, and brilliant feathers—a change that is most noticeable in the flanks, head and neck, from which all the new spotted feathers which came in fresh on July 6 are now shed.

Thus we learn the important fact that, whilst much of the plumage (notably the back, tail, long scapulars, parts of vent and breasts) has for the most part undergone only one actual change of feather in the great change from the full spring plumage (still retained on June 15) to the new pure coloured winter plumage of October 1, yet the head, neck, back, and upper chest and breast have, between July 1 and October 1, undergone *two actual moults*, the casting of the feathers taking place respectively about July 1 and September 25. A curious point is, how the drake gets his curly tail, for the new sets of long feathers covering the top of the tail, which came in fresh

SINGLE MOULT.

PLATE VI.



ADULT MALLARD DRAKE. Single Moult.

Single moult takes place only on the wings, tail, tail coverts, part of vent and the big scapulars between the dates July 6th and October 1st.

1. Tail feather about to fall July 6th. 2. New eclipse tail feather July 12th. 3, 4, 5. Showing gradual process of colour change in feather No. 2, taken from birds on August 12th, September 20th, and October 12th.

6, 7, 8, 9. Showing how the drake obtains his curly tail coverts by means of a single moult, which takes place July 6th. The long feathers come in (fig 6). They then turn up and over, at the same time changing colour until complete (fig. 9). Drawn from feathers taken—6, July 6th; 7, August 15th 8, September 20th; 9, October 12th.

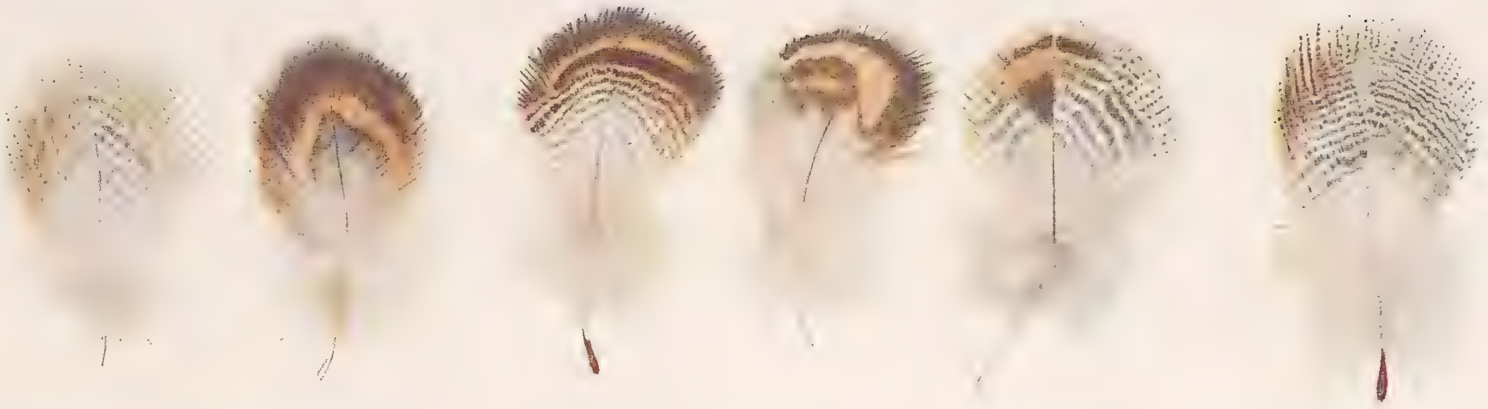
DOUBLE MOULT.

PLATE VII.

DOUBLE MOULT. From feathers at the back of neck.

First change in 6 days.

Second change in 7 weeks.



July 1st.
Old feather breeding dress.

July 6th. FALL.
Old feather breeding dress showing sympathy with new eclipse plumage now coming in.

July 6th.
New feather showing sympathy with old plumage now departing.

August 6th.
Full eclipse.

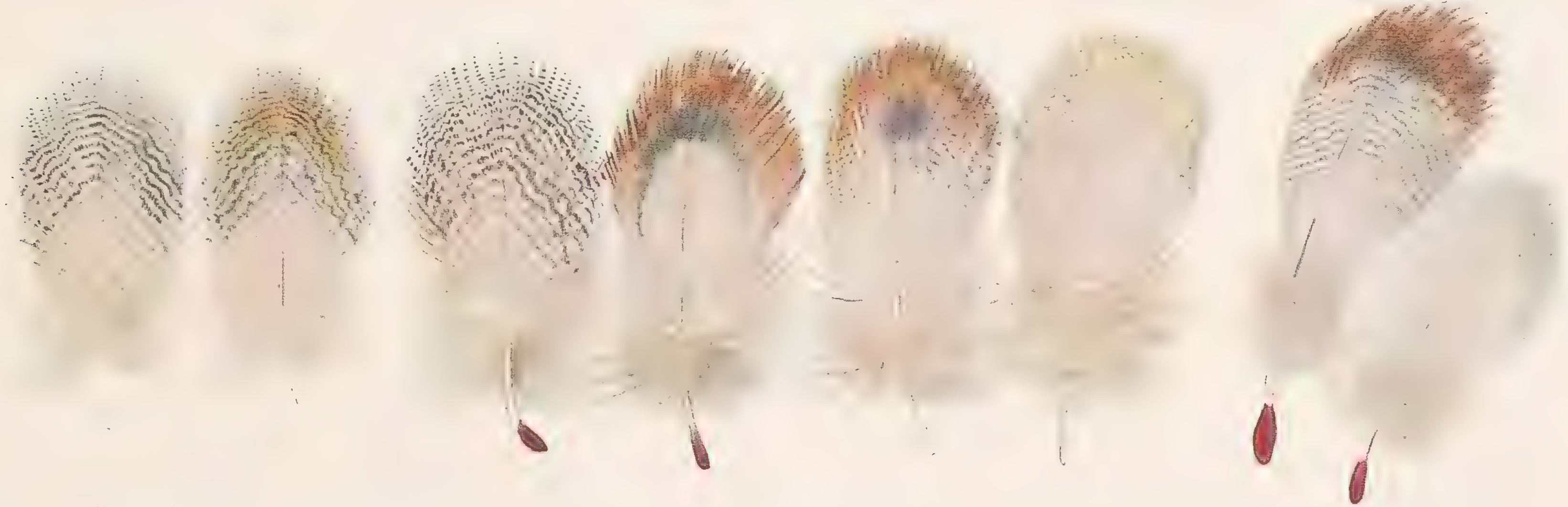
Sept. 25th. FALL
Eclipse feather showing sympathy with winter dress now coming in.

Sept. 25th.
New feather, full winter.

DOUBLE MOULT. From breast feathers.

First change.

Second change.



June 30th.
Old feather, full breeding dress.

June 30th.
Old feather, full breeding and now changing colour just before it falls.

FALL.

June 30th.
New eclipse feather, in full sympathy with breeding dress. In a few days it will completely change colour and become as feather on its right.

June 30th.
Eclipse feather coming in complete.

August 16th.
Eclipse feather after lying dormant for six weeks, now changing colour & sympathising with winter dress, which is now coming in.

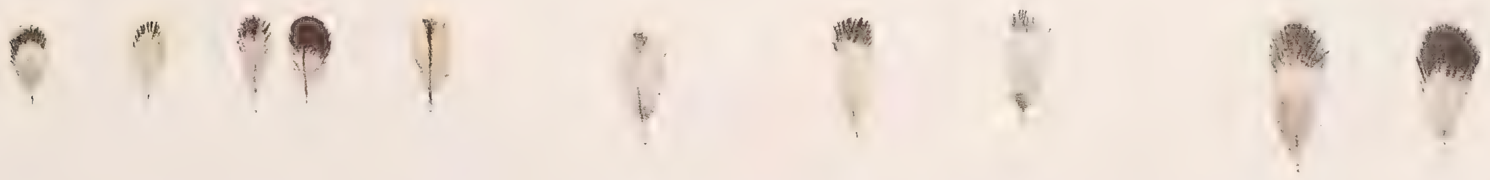
August 16th. FALL.
Eclipse feather about to fall, having almost completely changed in sympathy with winter dress now coming in.

Aug. 20th. Aug 20th.
New winter dress feathers now growing on the bird. They either come in in complete colour or in partial colour sympathy with the eclipse plumage now departing.

DOUBLE MOULT. Cheek.

First change.

Second change.



June 30. FALL.
Old feathers of breeding dress now about to fall. Many of these change colour in the last few days of their existence.

June 30.
New eclipse feathers.

August 12.
Full eclipse.

August 20.
Eclipse showing sympathy with coming winter plumage.

Sept. 20.
Eclipse feather about to fall.

FALL. Sept. 20.
New feather in slight sympathy with eclipse. Presently it will obtain its full beauty like feather to its right.

Oct. 1.

MALLARD. Adult Male.

and straight about July 6, commence, about August 15, whilst still in their brown colour, to curl upwards. After this date they grow rapidly and continue to curl, changing colour to jet black till, by September 25, they are usually quite complete.

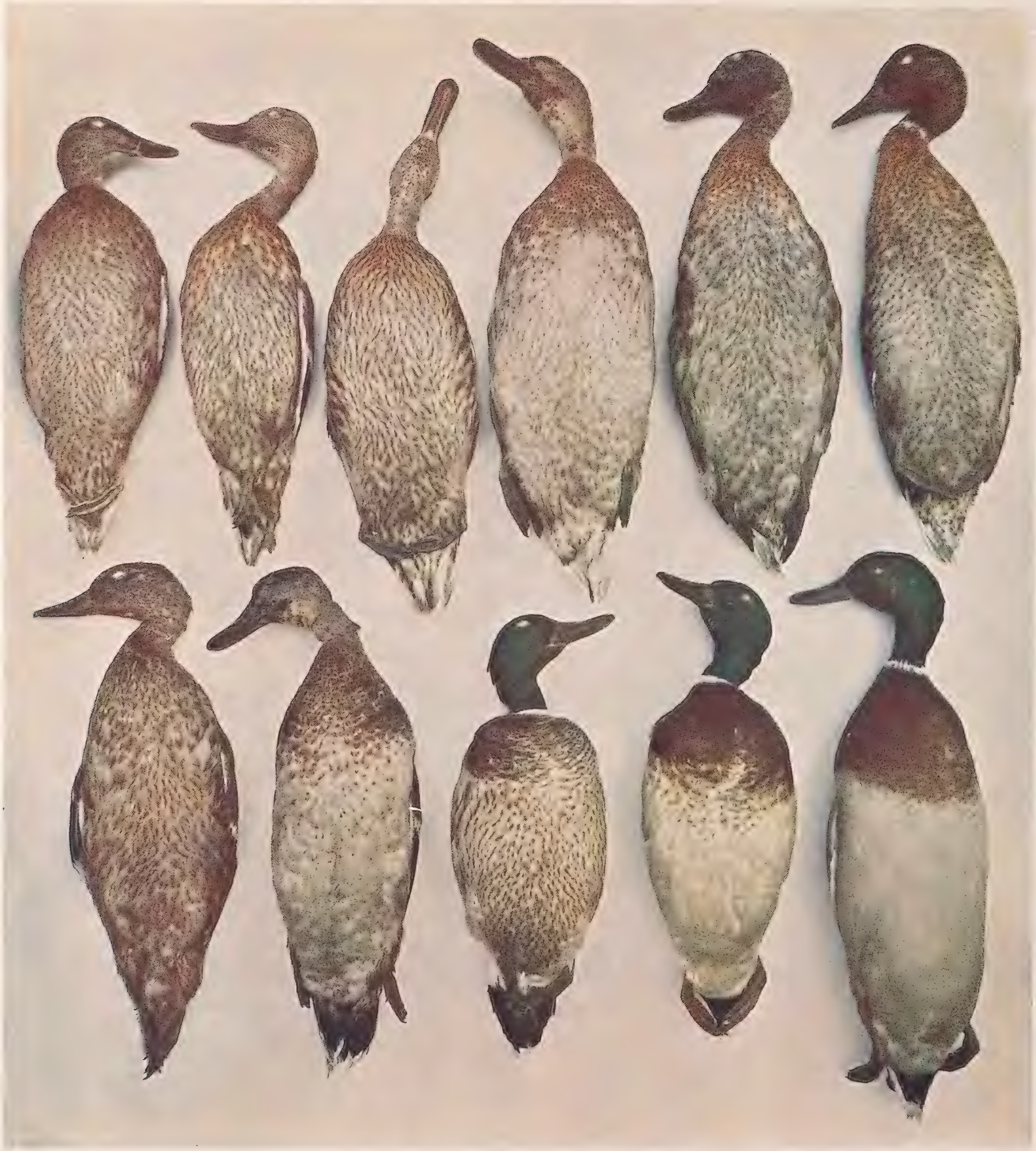
While, during the autumn, the whole of the plumage has been undergoing a change of colour to a more sombre hue, the other parts of the old drake have suffered in like manner; for as soon as, or even slightly before, the beauty of plumage vanishes, the bill fades to a dull greenish-yellow, and the legs, losing their bright orange, assume a dull greenish yellow with black webs, only gradually resuming their former brilliance when the full winter plumage is nearing completion.

By October 10 the old drake has, to all intents and purposes, assumed his full winter plumage, and yet, in point of colour, some little changes remain to be made, and will be brought about before the close of winter. As that period approaches superabundant markings gradually appear on (1) the white collar of the neck; (2) the space of new feathers on the top of the breast; (3) the white edging of the chestnut chest feathers, and (4) the markings on the tails.

Nor is this the end of the transformation scene. Nature never halts in her progress. All the parts I have just mentioned undergo a certain toning down. The white collar, instead of being somewhat straggling and broad, as at first, becomes regular and narrower; the space of nearly white feathers at the junction of the chest and breast becomes grey and ribbed like the rest of the breast; and generally the white edging of the chest feathers nearly disappears. The tail too becomes whiter, and the grey ribbing fainter, and though from March 1 to June 1 but little change takes place, perhaps a slightly richer tone of warm russet brown suffuses the back of the neck as far as the scapulars, and a few of the feathers of the scapulars themselves may share in the improvement.

The Young Mallard Drake

The young Mallard drake takes about eight weeks to assume in full the feathers of his first plumage. In wild birds this is sometimes attained, in the south of England, as early as May 1, but in the Shetlands it may be as late as September 15. During the first fortnight the plumage in some measure resembles that of the adult female, or more closely, perhaps, that of the young female. The differences, however, are constant and well marked, as will be seen, I think, in the illustrations, where I have pointed out how the two sexes, even in their first plumage, may be readily distinguished. In typical specimens the young male is considerably darker all over the neck, back, scapulars, tail and rump; and though in rarer instances the plumage of young males may seem to closely resemble that of the young females, the feathers of the lower back and rump will always be found to be very dark brown throughout, and not cross-ribbed with light brown bars, as is invariably the case with the young female. Another distinguishing feature is the top of the head, which in the young male is dark brown throughout, whereas in the young female all the feathers on the top of the head are dark brown edged with sandy yellow; the dark bar, too, extending from the top of the bill straight back to and beyond the eye, is much stronger and less broken up on the male bird than on the young female. The only other point of difference is the wing; but this is not by any means a constant one. All that can be said is that, as a general rule, the wing of the young male is far more brilliant in colour than that of the female. About the shoulder the wing of the former is an even grey-brown, whilst that of the latter is a slightly duller shade, and each feather is edged with light grey. Moreover, the two long, richly coloured feathers of the secondaries, immediately below the scapulars, often come into the first plumage of both young male and female, so fully complete and distinctive in colouring as to leave no doubt as to sex. Young males are also larger than young females.

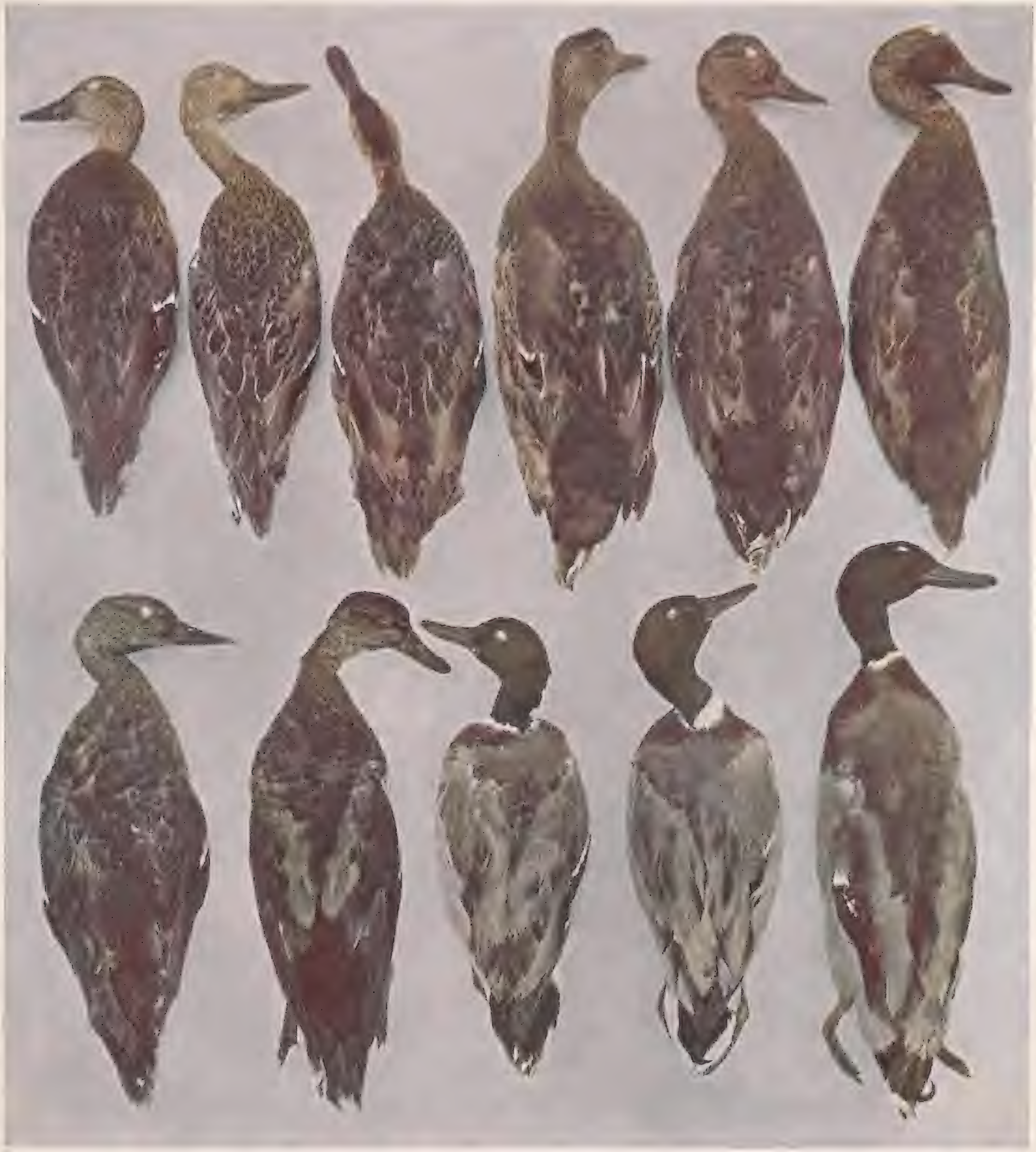


MALLARD. Breasts.

Passage of the plumage of the male from first plumage to maturity.

1. Young male, first plumage, August.
2. Young male, Sept. 1st; first signs of colour change and moult on the chin.
3, 4. Further progress. Sept. 10th.
5. In full moult; new breast and head feathers coming in. Sept. 15th.
6. Sept. 30th. Early hatched bird.
7. Sept. 30th. Late hatched bird.
8. Oct. 10th. Showing head moulting last.
9. Oct. 15th. Showing breast moulting last.
10. Nov. 1st. Last traces of immature plumage left on the upper breast.
11. Young male in full adult plumage. Nov. 15th.

PLATE IX.

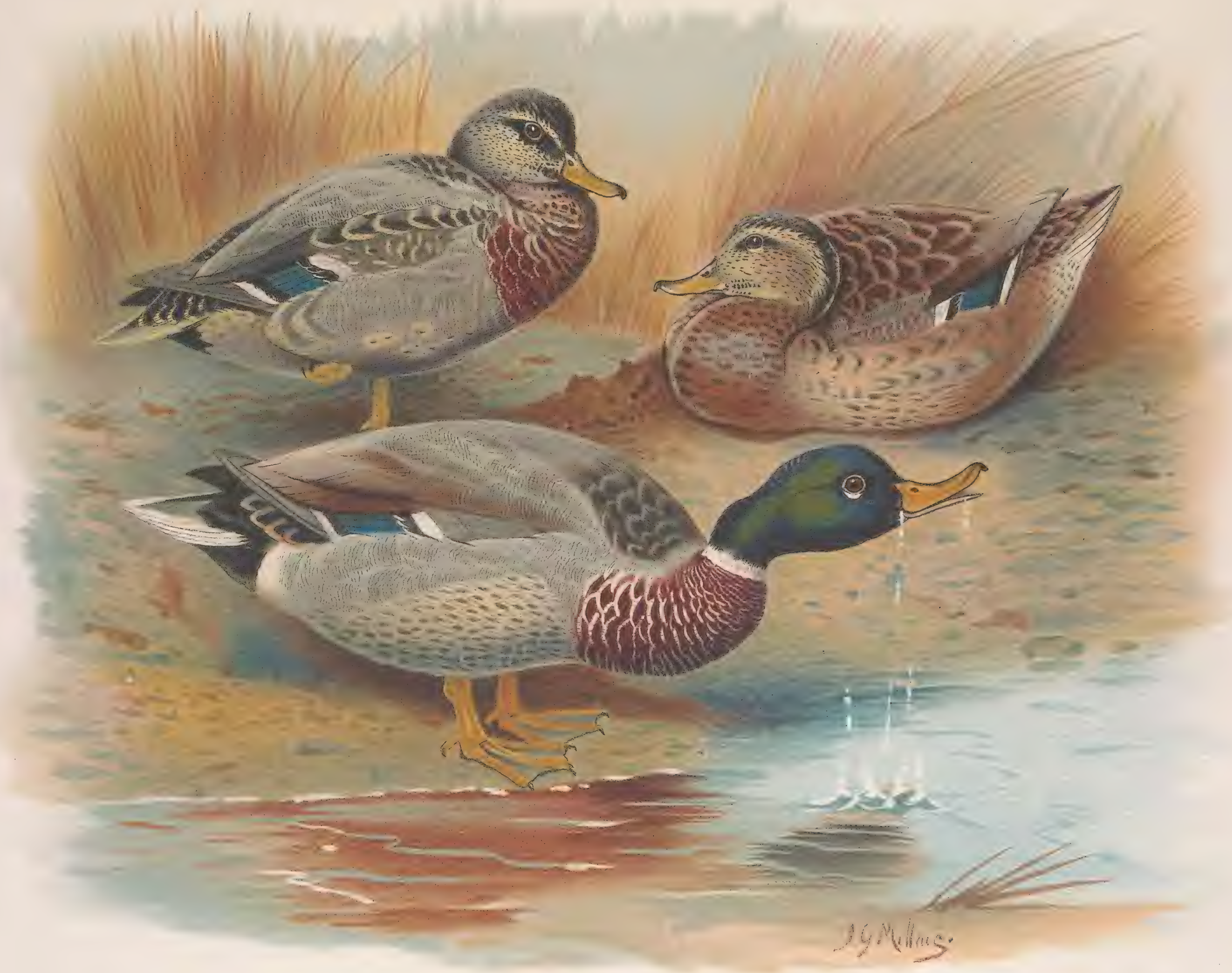


MALLARD.

Backs of the same birds as on opposite page.

The gradual passage by colour, assimilation and moult of the immature Drake to the adult bird, completed in five months.

1, 2, 3. August. 4, 5, 6, 7. September. 8, 9, 10. October. 11. November 1st.



Litho. W. Greve, Berlin

PLATE X.

MALLARD

Anas boscas.
(Immature males.)
5 months. 3 months.
6 months.

Not till about the middle of August can we say that the first plumage is thoroughly complete, and no sooner is this so than those wonderful colour changes, hints of the approaching full winter plumage, commence amongst the feathers. The change is generally first noticeable on the upper scapulars, the back, and the lower part of the back of the neck. On the lower part of the cheek and throat also many feathers change at their ends from a sandy colour to black, while a few feathers at the thigh and under the tail show a tendency to alter their hue. Whilst this is taking place in the feathers themselves, we first note the beginning of the actual moult and the advent of completely new full plumage feathers. At this date young males are readily distinguished from old drakes by their smaller breast markings and worn-looking tails; for in August and September the tails of old drakes are quite new and neatly arranged. As I have endeavoured to show in dealing with the transition of plumage in the old male, only a few of these new feathers come in in their complete brilliance; there is no sudden passing by means of moult from one plumage to another. And so it is with the young Mallard. As the moult proceeds, the old feathers, before dropping, become lighter in tone and slightly change pattern, in harmony with the incoming winter plumage, which, later on, will similarly adapt itself to its past phase, arriving in a hue more sombre than that which it will eventually assume. This change of the young bird into full plumage is a comparatively slow one, the process extending from about August 12 to November 12, during which period there is a constant dropping of the old first plumage feathers (wholly or partially re-coloured in the last few weeks or days of their existence) and a gradual influx of new ones, which, in their turn, daily grow richer in colour, all except the few late comers, which may, perhaps, achieve at once the full brilliance of maturity.

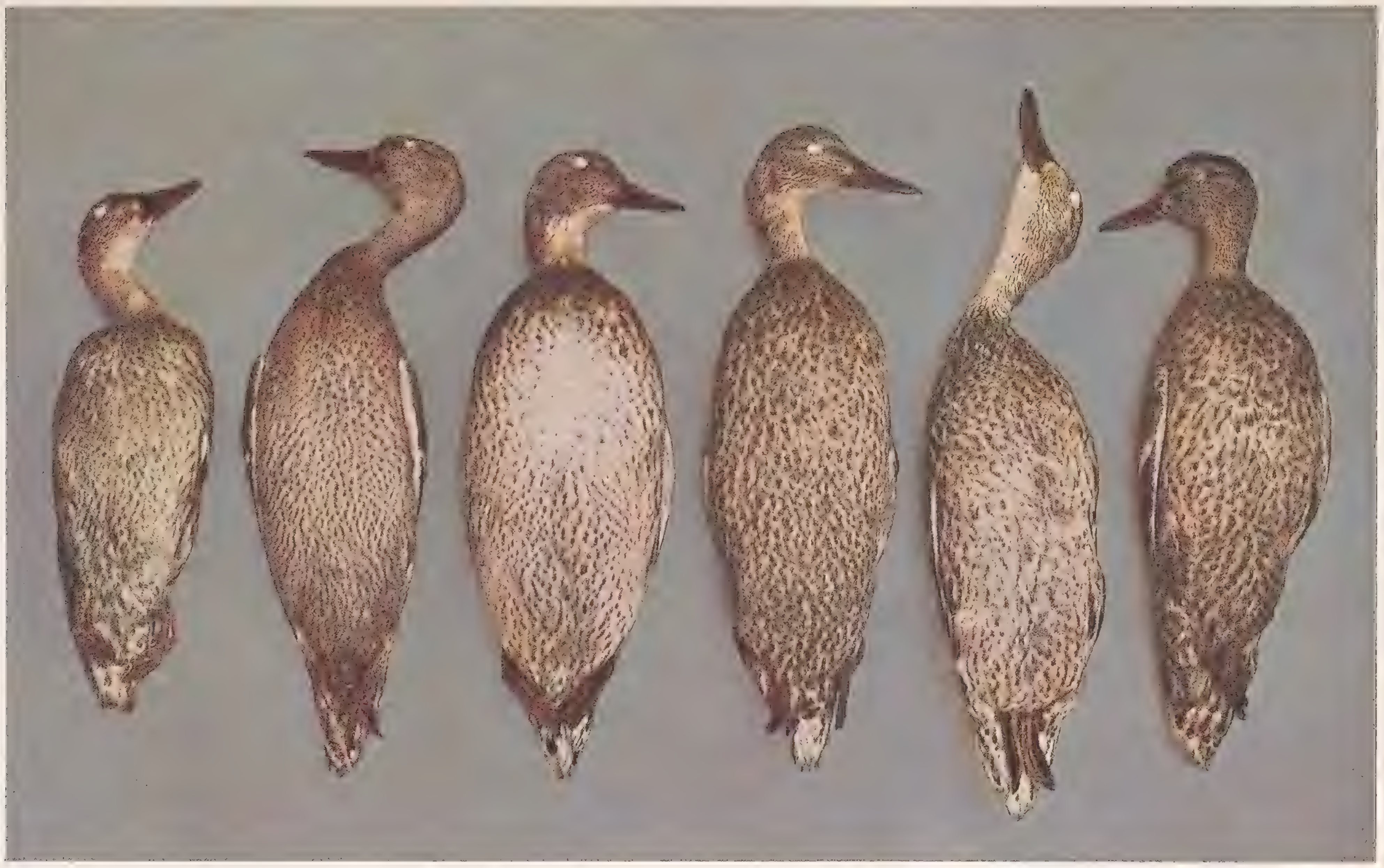
Of the young Mallard, as of all young surface-feeding ducks, no man can say which part of his clothing he will change first. As will be seen from the pictures of young males in process of assuming their full winter plumage, the whole of the breast or the whole of the back may change first, whilst other parts, such as the head, remain in first plumage; but sometimes, though rarely, the head changes first. As a rule the change is general throughout, the last parts to alter being usually the tail and the lower part of the chestnut breast.

As the jet-black vent-feathers and black curly feathers above the tail are often amongst the last to come into the plumage, it is not surprising that they should appear in full colour; but in the case of the *adult* drake, the tail-feathers far more frequently come in brown and ribbed, and the new vent-feathers are often a yellowish-white, turning in a week or two to jet black.

The bill and legs of the young male change gradually from pea-green to a bright orange, and by the end of November it is generally impossible to tell the young males from the old ones.

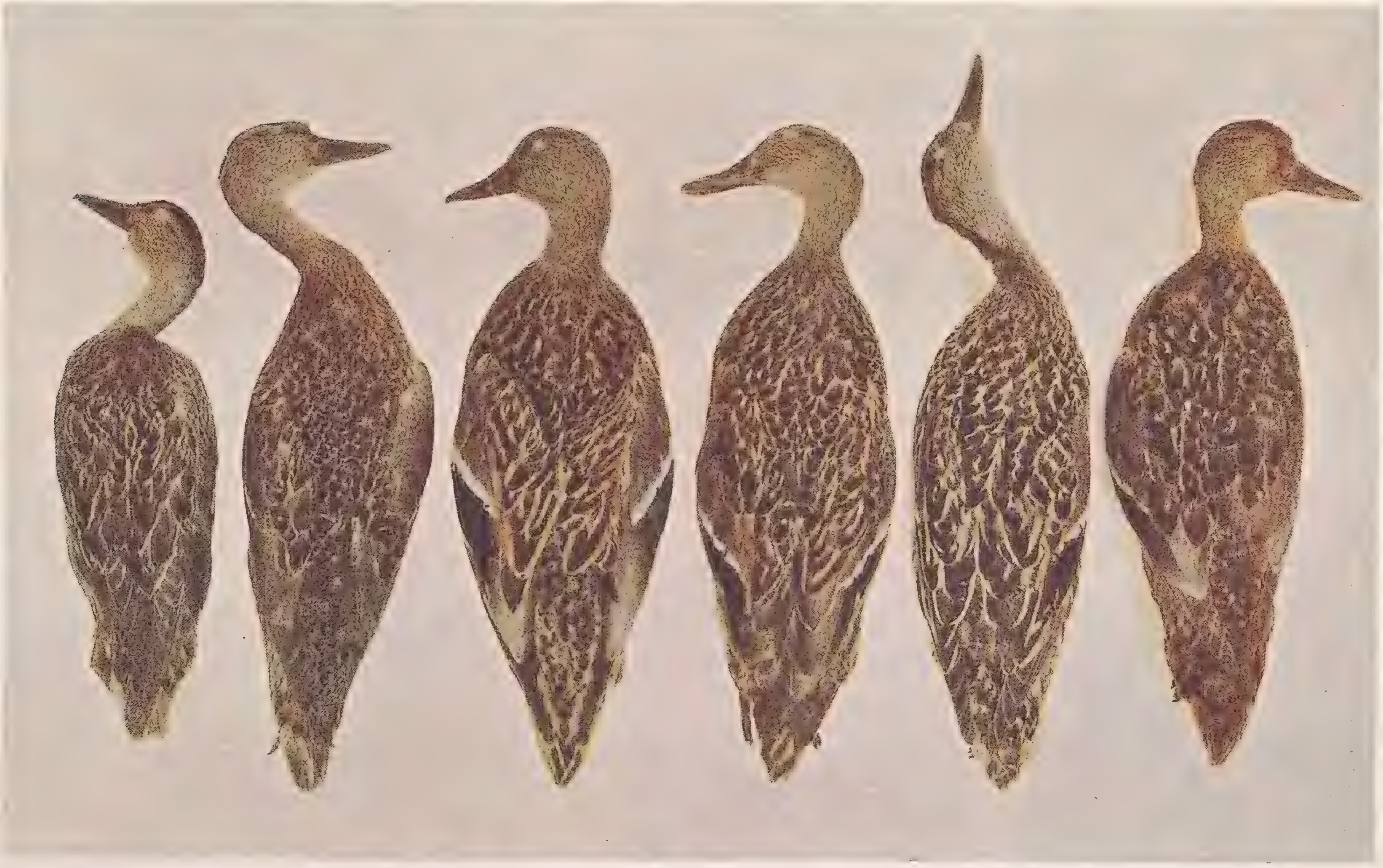
THE IMMATURE FEMALE

The first plumage of the young female Mallard much resembles that of the old female in winter. Immatures can, however, be easily distinguished from adults by their smaller size, the dull colour of the bill and legs, and the narrow, smaller, and more closely ribbed mottling and spotting of the brown and buff plumage. Though the back and scapular feathers may at times exactly resemble those of an adult, the breast markings of the immatures are always indecisive and 'stripey,' quite unlike the evenly spotted markings of an old bird. As, too, in the case of the young males, the tails of young females are seen to be much worn at the ends, in the months of August and September, whilst those of adults are quite new and neatly arranged. Since there are no great contrasts in colour to be overcome in the autumnal moult, the old feathers in August and September fall out, and the new ones come in directly, in what we may call their finished state. The plumage of young females, therefore, often appears to be complete somewhat earlier than that of immature males.



MALLARD. Female Types. Breasts.

1. Immature female in full plumage. August. 2. Immature female, September. 3. Adult female. December. Light type. 4. Adult female. December. Dark type. 5. Adult female. Light type. June. Breeding dress. 6. Adult female. Dark type. July. Breeding dress.



MALLARD. Female Types. Backs.

The same birds as above.

THE ADULT FEMALE

With ducks, as with game birds, there are two very well marked types—a light one and a dark one—and amongst the surface-feeding species this variation is most noticeable, especially in the case of the female.

When November has set in and the female wild duck has assumed her full winter dress, we may often see, in the same flock, very dark brown females with heavily spotted breasts, whilst others have a very rich red-brown tinge, with throats almost white, and breasts almost entirely free of spots.

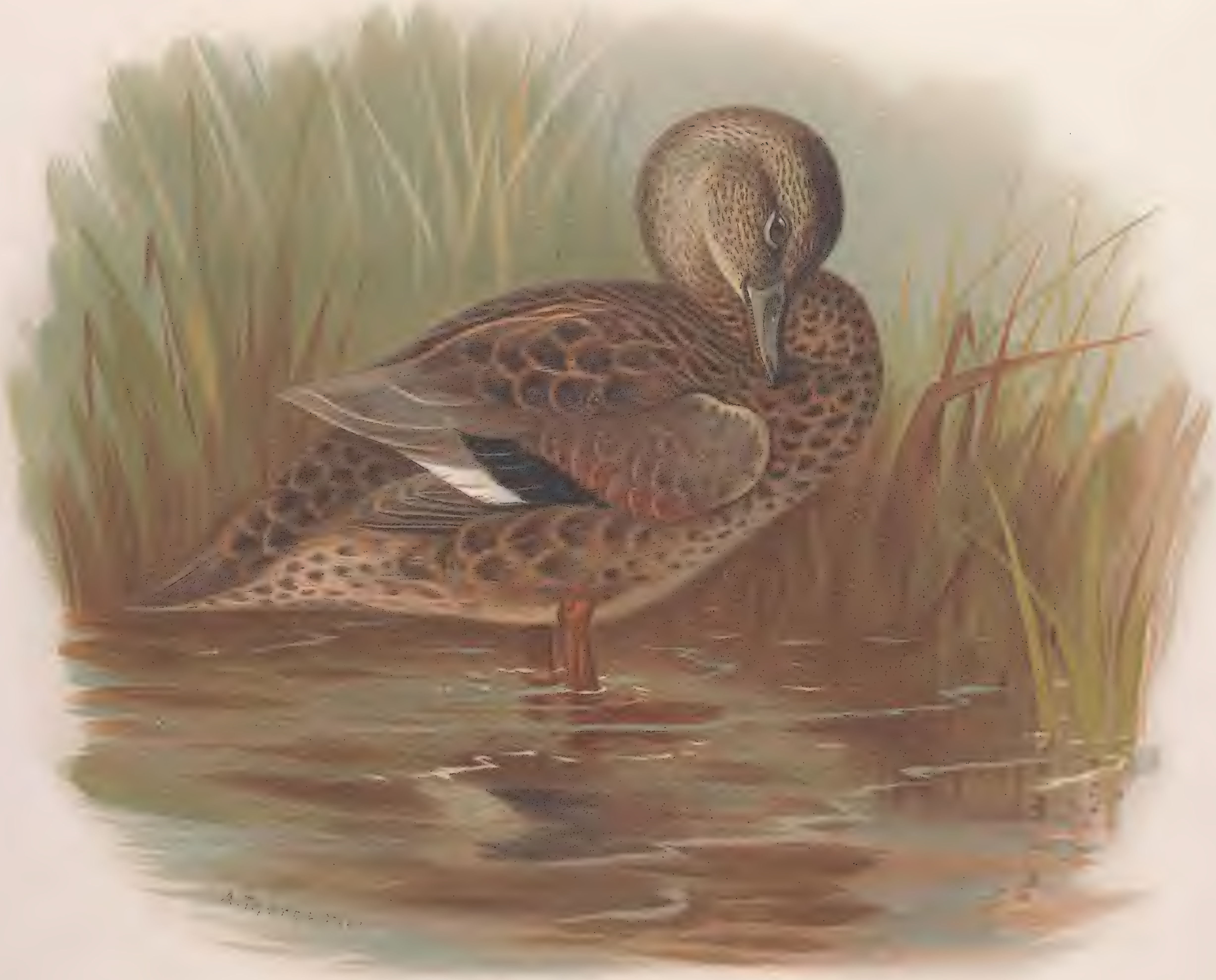
These two forms retain their own distinctive types throughout the winter and till late in the spring (May, in fact), when there is sometimes a slight influx of new feathers on the breast, especially where the bird has heavily plucked herself of both down and feathers for the 'building-up' of her nest. The whole plumage then (by means of a colour change) becomes much darker, especially about the head, breast, and scapulars, and the spots, which in the winter were hidden under the feathers of the light-type female, work down to the surface. Thus these light-form birds become in the breeding season but little different from their darker sisters. That the two different types are still found amongst breeding birds is shown in the coloured photograph facing page 26, where examples of each are given. Whether the nesting female moults in the summer or in the autumn, the change is entirely governed by the breeding of the bird; that is to say, if a wild duck, after laying in April, hatches and rears her brood, she will moult her quills so as to fly at the same time as they do; but if, on the other hand, her nest is destroyed, she will not moult so soon, but will lay again, and then cast her primaries about the time her second family are on the wing. You may, therefore, find adult females moulting and sometimes incapable of flight at any time between the months of June and September.

By August, then, through the wear and tear of domestic duties, the plumage of the breeding females has, as a rule, assumed a rusty, worn appearance, the buff tips of the feathers being often so nearly worn off that the whole bird has a very dark appearance, whereas the old drakes have long ago completely changed, and some are even capable of flight, in their new brown dress. Even as late as the middle of September I have seen old ducks, with their young only half fledged, which have not yet moulted a feather.

Very noticeable during the end of the nesting season is the wonderful provision of Nature, which makes one law for the males and another for the females; for, whilst the former are skulking in parties in the reed beds, incapable of flight, the latter, now fitted for a life of activity, have to care for their little ones, teaching them to fly, and guiding them to the best feeding grounds at night. It would almost seem that to maintain the necessary power of flight the female Mallard can of her own accord retain her old plumage as long as she likes, and does not, therefore, allow herself to suffer blood exhaustion by moult until her duties are accomplished, and the strain of maternal cares at an end. Moreover, should she commence to moult (as she occasionally does) before the young can take care of themselves, she does not generally moult all her quills simultaneously, as the males do, but casts them unevenly or alternately, retaining a sufficiency of intermixed new and old primaries to support her in her flight.

I have often seen a dog catch a moulting female who had shed too many of her old quills at once, and whose new ones were not quite sufficiently strong to bear her; but, as a rule, many females can fly freely throughout their moult.

Though, as previously stated, the adult female Mallard commences her autumn moult into winter dress at a later date than the male, she nevertheless, by a more or less hurried change, attains, about the same time, her complete winter garb.



Litho. W. Greve, Berlin.

GADWALL.

PLATE XII.

Anas strepera.
Adult male, Eclipse plumage, July 6th.

THE GADWALL

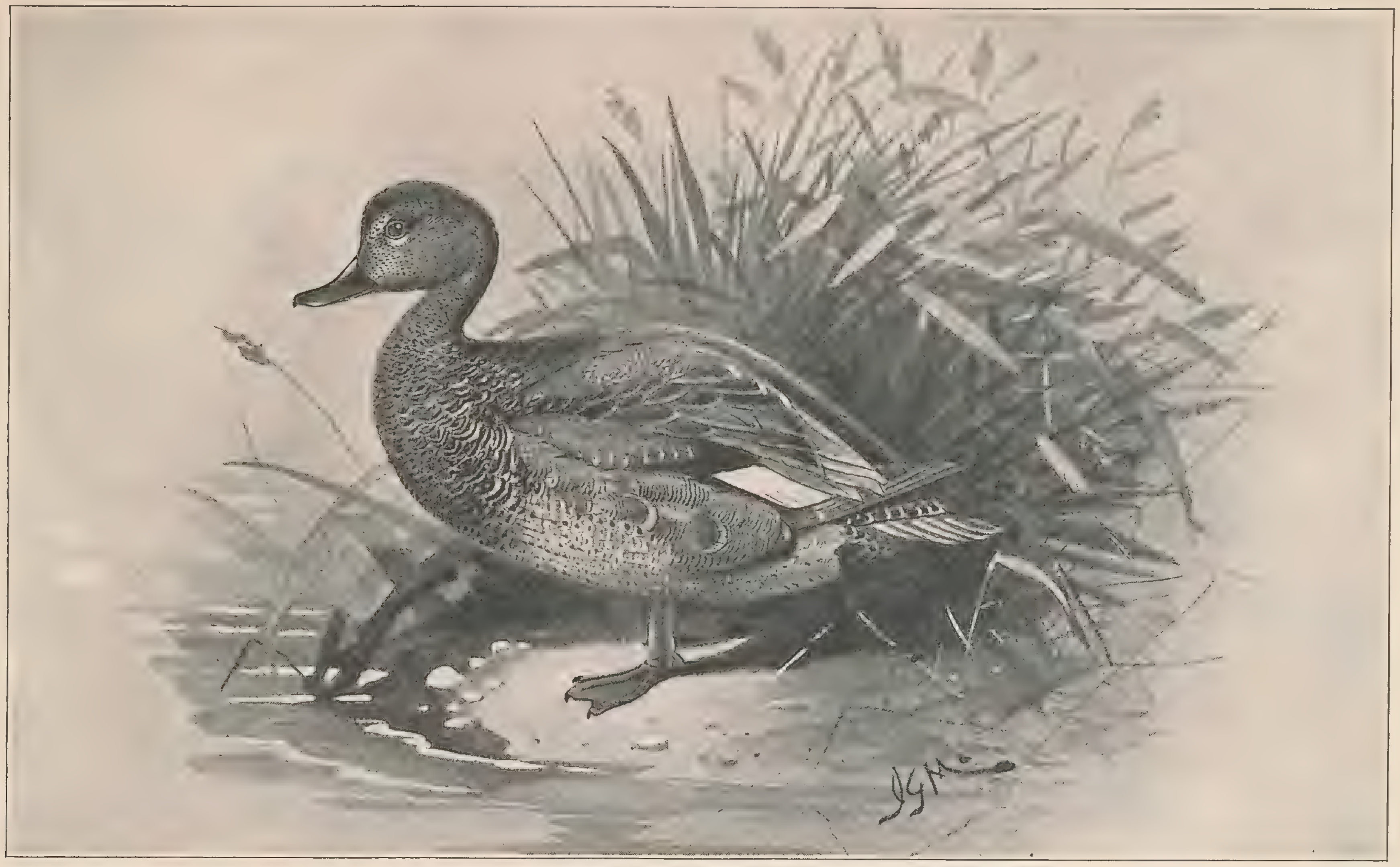
Anas Strepera (Linnæus)

This aristocratic-looking duck has, like the Mallard and Pintail, a most extensive range throughout the world. It is found in summer as far north as Iceland, where it is said to breed sparingly in the Myvatn district. From Archangel, on the edge of the Arctic seas, it breeds in most of the countries to the south, including North and South Russia, Great Britain, Sweden and Denmark, whilst in Norway it only occurs on migration. In North Belgium, Holland, England and France the Gadwall spends the winter. Locally it is abundant in Spain and breeds there, but is scarce in Portugal, and again it occurs in large numbers in Sardinia and in the marshes of Catania and Lentini in Sicily. It also visits Asia Minor, and, according to Captain Shelley, is moderately abundant throughout Egypt and Nubia. During winter numbers also visit Morocco, Tunis, and Algeria, in which country I have seen it near Oran.

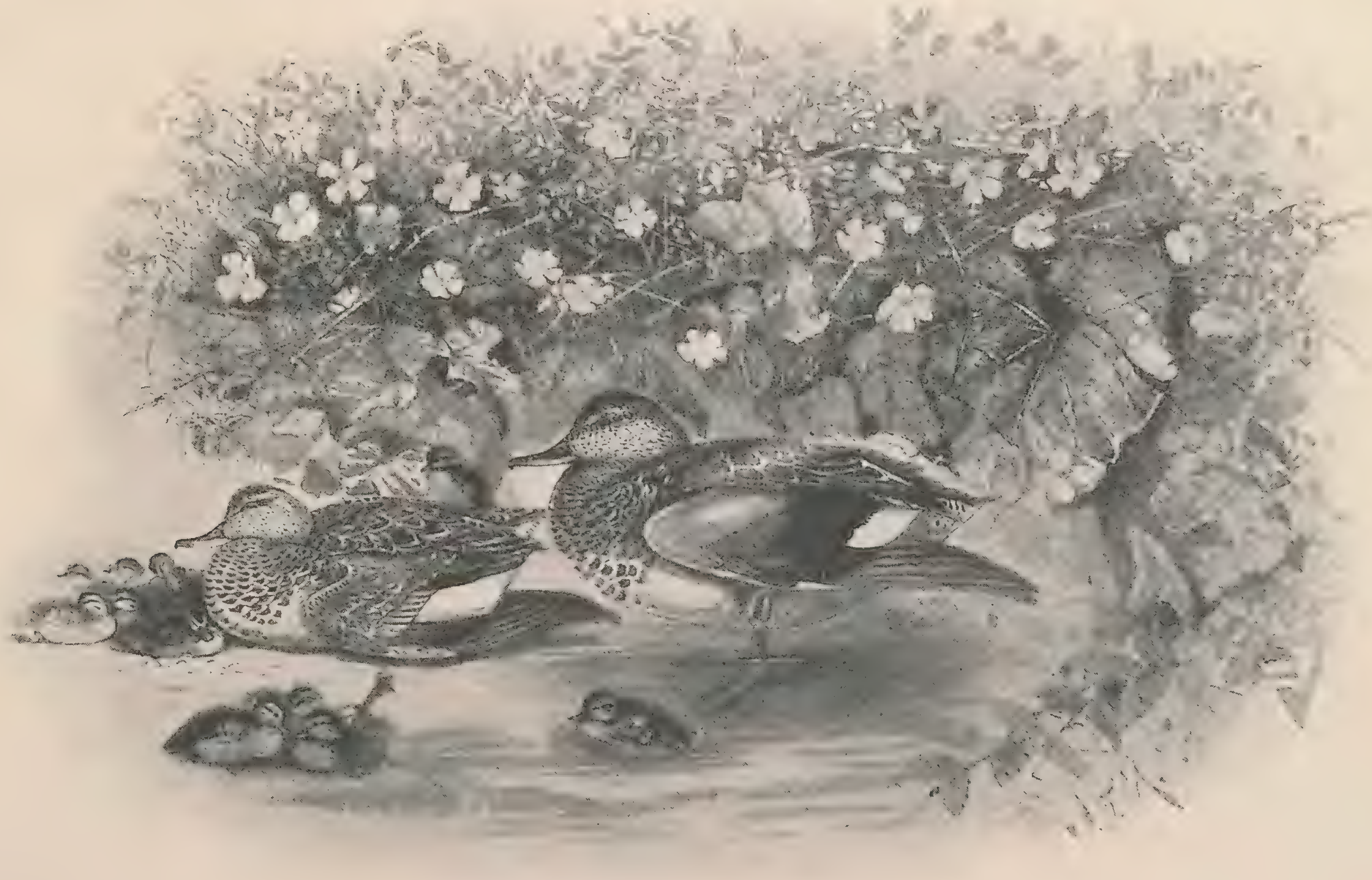
In Asia it ranges through Southern Siberia and China, Mr. Dresser placing its eastern limit at Japan; whilst in India, in the cold season, it is, according to Hume, the most plentiful species of duck from Assam to Kurrachee. During summer, in the New World, where it was first noted by Wilson, this duck moves as far north as Hudson Bay and the Saskatchewan, and extends at one season or another over the whole of Canada and North America down to Mexico. Wilson says it is found on the Atlantic seaboard from Maine to Texas, but is more abundant in the interior, 'particularly so on the tributaries of the Ohio, Missouri, and Mississippi.' In the innumerable hosts of duck that assemble every autumn on the lakes of Minnesota and the Western States the Gadwall is well represented. I have seen it in Wyoming.

Except in one or two favoured localities, it may be said to be a somewhat rare and distinctly local visitor to the British Islands. There is evidence, however, of its undoubted increase and extension of range over the whole of the south of England, whilst in Scotland it would seem to be gaining ground very slowly. In Norfolk the number of Gadwalls visiting certain Broads is now considerable; so much so that on one river, near Thetford, where, fifty years ago, the species was practically unknown, some hundreds are annually killed, and the birds themselves far exceed the Mallard in number. They are also common in winter at Merton and Narford, and in each of these places a few odd pairs annually stay and breed. From newspaper reports, and those of local Natural History Societies, it would seem that Gadwalls nest in Norfolk almost as commonly as the wild duck; but this is far from being the case. Only one or two pairs nest even at Narford and Merton, where in winter they are sometimes seen in hundreds; and I quite agree with Mr. J. H. Gurney, who, in a letter to me, states that the increase of both this bird and the Garganey as resident species has been 'grossly exaggerated.' Gadwalls become rare towards the west of England, but they are found in small numbers all along the southern counties—in Essex, Kent, Sussex, and Hampshire, being particularly numerous on the Test; also in Devonshire, where they are generally to be found at Slapton Leigh. It has been recorded as a rare visitor to most of the English counties; but two places in Scotland—the Earn in Perthshire and the Island of Tiree, off the coast of Argyle—it visits regularly every winter. These birds are for the most part immatures, but a few adults occur; and I think that the day will come when they will breed on Loch Leven. In the Outer Hebrides, particularly in the north and south-west, and Benbecula, the Gadwall is now a regular winter visitor. In Ireland it is considered a scarce and irregular winter visitor, but it visits the Longueville decoy lake every season.

Although it will rest at sea by day, the Gadwall is even less a marine



IMMATURE GADWALL DRAKE (Age 6 months).



A FAMILY PARTY—JUNE.

bird than the Mallard, yet in most of its habits it closely resembles that species; and, though not naturally so cunning as the wild duck or the Wigeon, is much more shy and retiring in its ways. It loves quiet and sheltered nooks, still waters and sluggish streams, where it feeds on a vegetable diet composed chiefly of water-plants, their seeds, and fresh-water molluscs. In summer it is very fond of insects, and spends much time in catching flies and water-beetles; but on the whole it is, except in the courting season, the most undemonstrative of all the ducks. Floating motionless in the shadows, or lying hidden in the reeds, the birds seldom attract the attention of the passer-by unless flushed from their shelter, which they are commonly loth to quit. On the water the female often keeps up a quiet quacking noise, very like the call of the female Mallard; but once on the wing she seldom calls, the male then uttering his curious croak, a sound somewhat resembling the cry of the raven, until he passes beyond hearing distance. Apparently this is the only note he ever utters. In the spring it is louder, and extended into what may be termed a crackling croak, the same note several times repeated, somewhat resembling in sequence the Garganey's 'crackle,' but without its high pitch.

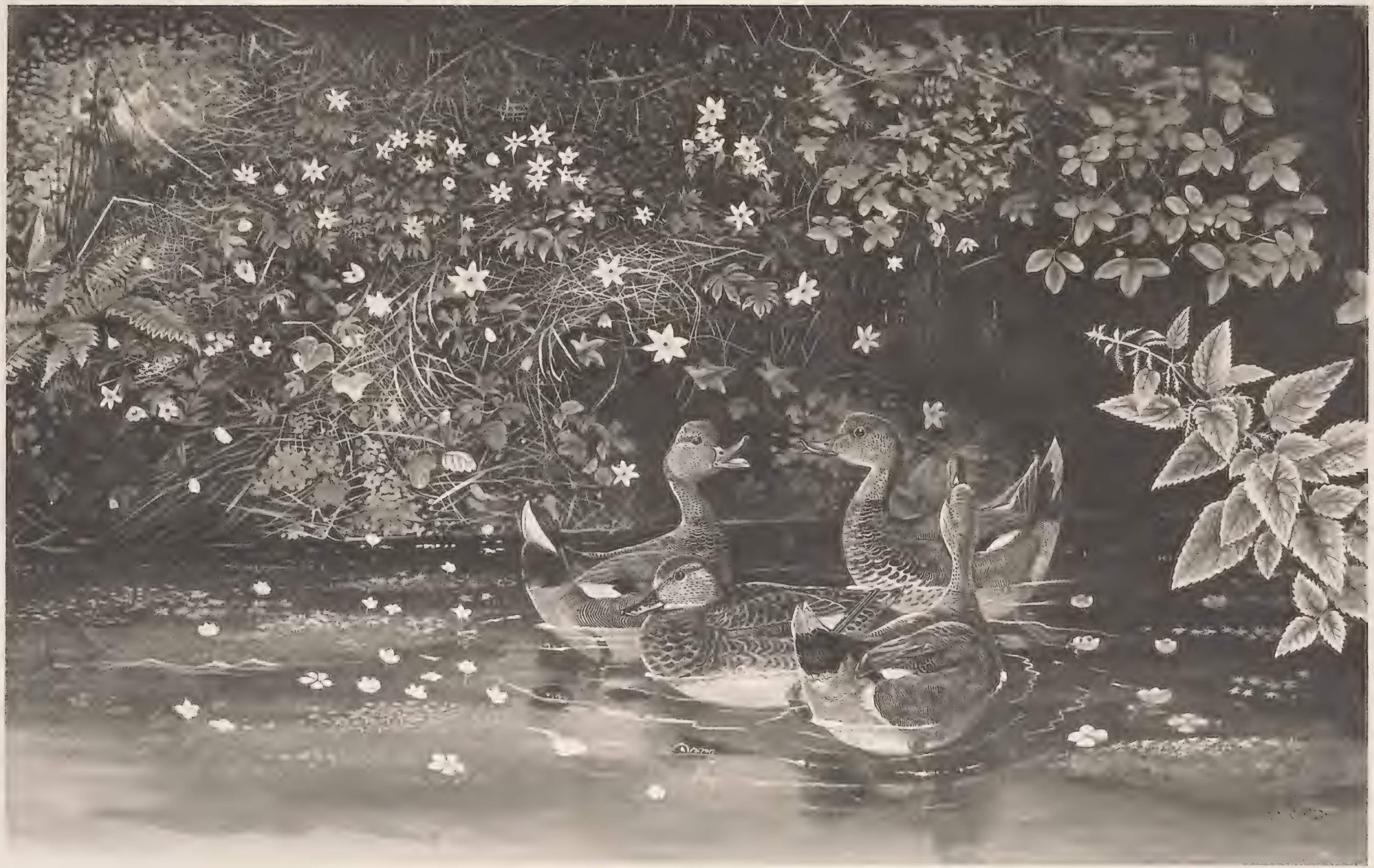
Gadwalls rise swiftly and easily off the water, and on the wing rather resemble Wigeon, but they are not nearly so cunning as these birds in avoiding danger; after having been once or twice shot at, they do not seem to grasp the fact that to avoid destruction they must perform their journeys at a greater elevation, and so they are easily driven along sluggish streams or from their favourite lakes to the hidden gunner.

In general appearance on the water they are a very buoyant duck. They sit high, and the male is easily recognised even in his dull eclipse plumage by the bold white feathers on the wing. The duck is, however, much more difficult to distinguish, and may easily be mistaken by any but the expert in such matters, for on the water she closely resembles the female Mallard. In flight, however, her more rapidly beaten wings, her delicate form and snowy breast, readily lend themselves to her identification.

Shy and suspicious of danger, Gadwalls keep by day in small flocks far out in the centre of the lakes and lagoons, even where they are especially numerous, such as in the Jeels of India, or the swamps of Florida and Louisiana. There they rest and dream away the hours till sunset, when the usual commotion takes place prior to the evening flight. In the Island of Tiree, in Scotland, there is no sheet of water large enough for them to gain perfect security by day, so they move right out to sea and rest all day on the ocean beyond the Ballyphetrish rocks to the west; and when severe weather comes on they shelter on the inner side of the reef, making this their sanctuary throughout the winter.

In spring, at the season of courtship, the Gadwall takes to unusual activity, even by day. He may be seen constantly swimming to and fro, uttering his unducklike croak and showing himself off in a modest sort of way before the females. His particular form of display is, like all his ways, quiet and self-possessed. In company with other males he will swim slowly round the common object of their affection, all of them merely raising their necks and erecting the feathers on the crown of their heads. Occasionally this is accompanied by a quick jerking of the bill and an elevation of the tail, but there is nothing either flashy or very noticeable about the 'show.' The young male Gadwall often acquires what may be said to be full plumage at ten months, and will pair and mate with a female if allowed to do so; but he has not much chance of a partner if there be any old males about, for they generally succeed in driving the youngster off, and will themselves practise polygamy, and take two or even three wives rather than see them mate with the immatures. In this respect they are far more quarrelsome and jealous than either the Shoveler or the Mallard, whose views on the subject of matrimony are distinctly broad.

Like the Mallard duck, the female Gadwall will make her nest (generally well concealed) either close to, or at a considerable distance away from, water. Mr. St. Quintin tells me that at Scampston, where they breed regularly, they are in the habit of going far into the woods to nest, and consequently few



Walter L. Colls. Ph. Sc.

Gadwall drakes courting.

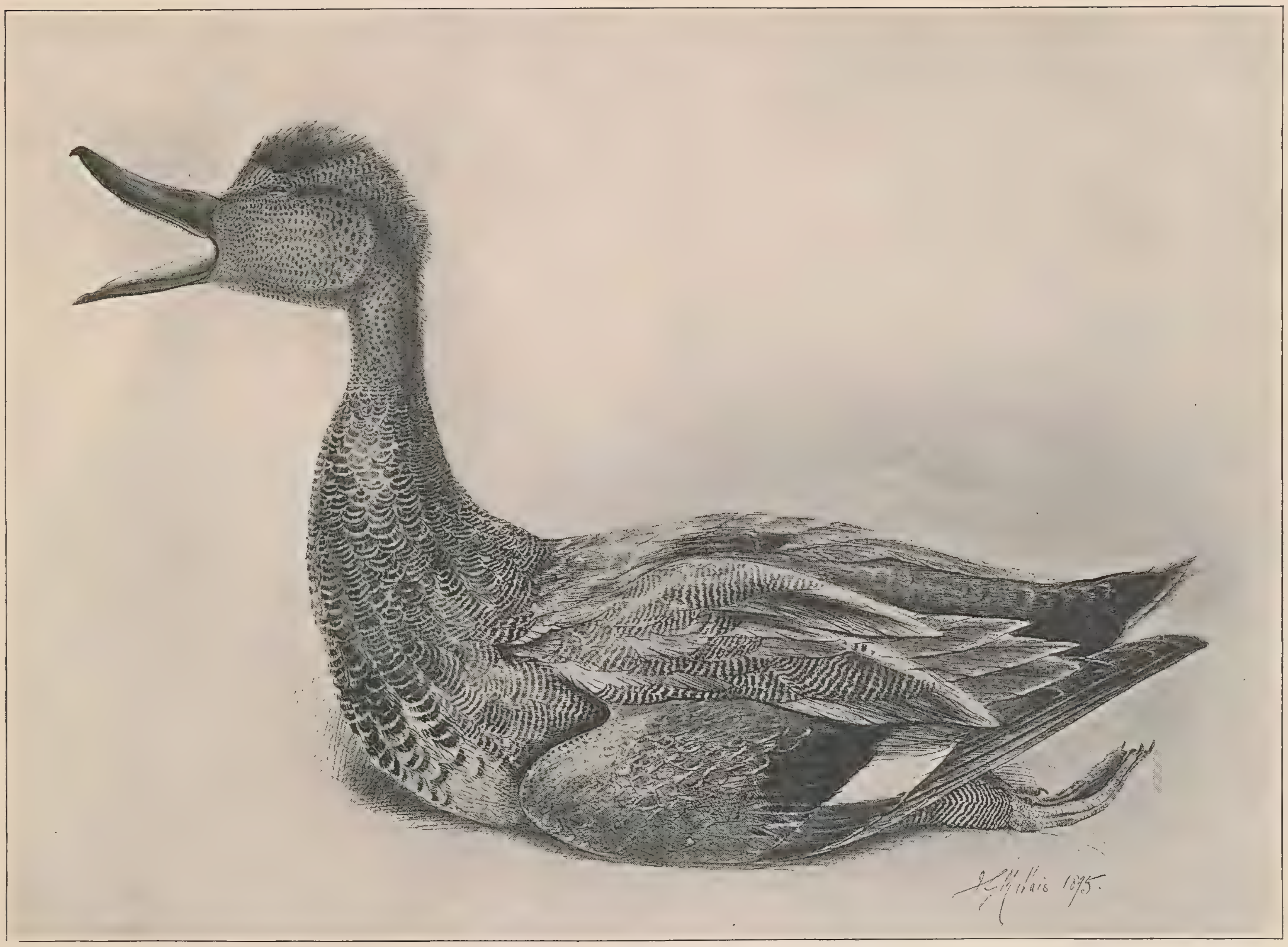
broods are reared, as the mothers so commonly fall a prey to wandering foxes, who snap them on the nest. The female Gadwall lays from eight to fourteen eggs, of a buffish-white colour; and, when these are fresh, without any sign of the evanescent green attributed to them by several authors. The measurements are 2·1 by 1·5 in. The young Gadwall in down closely resembles the young Mallard; but the whole bird is more delicately constructed, the bill finer, as also the streak above the eye.

In confinement these ducks make a charming ornament to any sheet of water. They do well on any of the foods usually supplied to wild ducks, but with their love of seclusion they must have a considerable area and suitable places of shelter absolutely free from disturbance before they will breed.

Many owners of small enclosures and lakes where a large quantity of the usual water-fowl are kept, are at a loss to know why their various ducks, all of which are adults, and have undoubtedly paired, will not nest, even where a secluded island or an *abri* of some sort is provided. The explanation is generally simple. It is a question of area and absolute quiet, and this the birds cannot obtain if the protected waters and their surroundings are too small, for one single pair of Sheldrakes or Egyptian geese will upset a whole community by their jealous appropriation of perhaps the only suitable nesting-ground. If surface-feeding ducks, on the look-out for a nice quiet spot, are driven away once or twice, they will not again attempt to find a nesting site; rather will they, year after year, refuse to lay, or at most only drop an occasional egg about the banks. Give them what they want—plenty of room and an undisturbed covert—and once the first pair of pinioned birds have reared their young, their flying progeny will continue to do so in the summer, year after year.

To nest in, summer-ducks and mandarins must have exactly the right sort of hollowed stump, protected at the top, and with a ladder leading up to the hole. Sheldrakes like rabbit-holes, but will take to an artificially constructed one. It is very difficult to induce pinioned Teal to nest in confinement; only one or two experts in such matters, like Mr. St. Quintin and Mr. Blaauw, have succeeded. Shovelers, Pochards, Red-crested Whistling ducks and Eiders may sometimes be induced to breed; but, as a rule, they require an enclosure to themselves, and even various kinds of wild geese, such as the White-fronted, the Bean and the Bernicle, have been bred by Mr. St. Quintin and Mr. Cecil Smith. Canada geese will do well almost anywhere, and certainly one of the most interesting sights I have witnessed in England was at Melbury, Lord Ilchester's beautiful home in Dorset. Here the Canadians breed well, and there is usually a 'herd' of from forty to fifty on the lake in front of the house. On a bell being rung these grand birds all leave the waters and come flying round the house, every bird 'honking' and calling his loudest.

For the benefit of the reader who may at one time have kept summer-ducks and mandarins, and found it impossible to get them to breed, it may be well to expose a trick of the trade in these creatures, as practised in one institution, at least, that one would have thought absolutely above suspicion. Some years ago a certain Zoological Society in Europe became famous for its supply of these lovely birds. They were bred by hundreds in its grounds, and were sold for a high price, veritably like hot cakes. But of the many in this country who purchased pairs in the hope of breeding them as freely, not one succeeded! More than one naturalist sought the explanation of this extraordinary failure, but without result until, one day, our 'Zoo' in London procured a pair of mandarins from Japan and a pair of Wood Ducks from North America. Then did an observant man, who told me these facts, go to our Gardens in Regent's Park, and there he watched the newcomers carrying on their courtship in the customary fashion. This set his mind at work, for he had seen nothing like it amongst his birds from the 'X' Society, none of which had shown any disposition to pair. So he at once killed one of his Wood Ducks; and the secret was a mystery no longer. A skilled operator had been at work on all his birds before they had left the 'X' Zoo, and fertility had been rendered impossible! Of course there were people who laughed at this as a very smart trick to obtain a monopoly; but amongst Naturalists 'smart tricks' are not commonly approved of.


J G Millais 1895

YOUNG GADWALL DRAKE (7 months old).

Hybrids of the Gadwall with other surface-feeding ducks are rare. I have seen a cross with the Mallard, and in Mr. Barrington's collection there is a hybrid between the Gadwall and the Wigeon obtained in the Moy Estuary, Ireland.

PLUMAGE OF THE MALE GADWALL

Weight, 2 lbs. to 2 lbs. 6 ozs.; length 20 inches; wing 10·5 inches. Legs, toes, and webs, orange-brown; bill, black. Head and upper neck grey-brown, lower neck grey-black, with white crescentic markings; breast and belly white; undertail coverts bluish-black; flanks and vent grey, with black vermiculated lines; tail dark brown with light-coloured edges; scapulars grey with broad black jagged lines; median wing coverts chestnut; secondaries brown and black, the outer feathers forming a strong white wing spot; primaries brown.

The Gadwall, though commonly regarded as allied to the Mallard, on account of the general similarity of its habits, has really, I think, more affinity with the Wigeon. It more closely resembles that species both in flight and in physical structure, and—most important of all—its transition of plumage is practically alike.

The young drake passes through the usual phase of colour-change and moult, *i.e.* as the winter advances the first-plumage feathers gradually change their pattern and colour, and in time are moulted and replaced by complete adult feathers, which slowly make their way into the plumage. All this goes on until, by the month of March, we generally see young males in full plumage, except all over the breast and vent. The spotted feathers are generally retained in the plumage of immatures at nine months, and are only gradually moulted from March to May, when the fresh flush of the new feathers of the eclipse comes in, and, on June 1, the bird resembles the old male, except that, like the Wigeon, the wings have not yet been moulted and are much duller in colour.

I have said before that young males in March are in full plumage except for the spotted breast and vent; but it does not do to dogmatise on this point, for I have in my collection a young male whose entire plumage was practically complete at eight months. This, however, is quite the exception, and (as in the case of Wigeon) entirely due to high condition, and to the fact that it was an unusually strong and early hatched bird of the previous year. It may be said then that, like the Wigeon, the male Gadwall, having renewed his wings in the eclipse stage, comes out in full winter plumage in October, *i.e.* when the bird is sixteen months old. Yet here again we are confronted with a fact on which hypercritical critics may be disposed to split hairs. The young male birds are never so rich in colour, nor, as a rule, so big as drakes of a year older; and the same thing may be said of all the *Anatidæ*. This, however, is a small point, hardly worth arguing about; so let us call the bird adult when he has really gained his full plumage and will breed, though he has not quite arrived at the zenith of perfection.

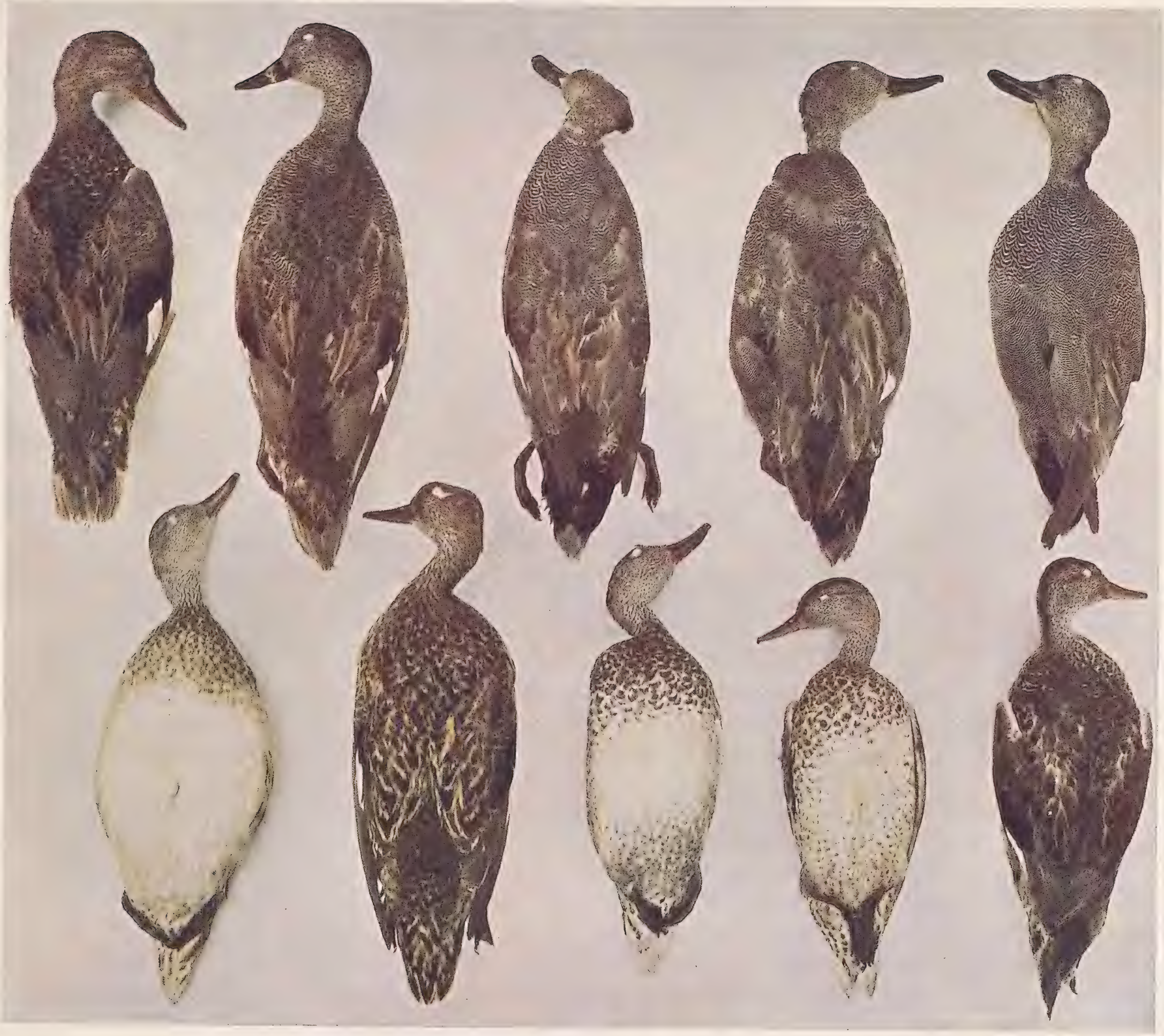
Old male Gadwalls occasionally become very heavily ribbed all over their backs, and of this type I have figured (with other males) a very beautiful specimen, kindly lent to me by Mr. Heatley Noble, and shot by that gentleman near Thetford.

The Gadwall drake is, with the Red-crested Pochard, the first of all the ducks to lose his spring glory, and I have seen a male on Mr. St. Quintin's lake in full eclipse on May 20. As a rule, old male Gadwalls have changed to the brown dress by June 1, the young males of the previous year altering their clothing a month later. About the end of August they begin to change colour and moult, as do also the Wigeon and the Mallard.

THE FEMALE GADWALL

The female Gadwall is considerably smaller than the male. The crescent markings on the neck are brown, and not so clearly defined as in the male.

PLATE XIII.



GADWALL.

1. Immature Male in first plumage, showing first feathers of maturity on the upper scapulars. September.
2. Immature Male. October.
3. Immature Male. November.
4. Immature Male. December.
5. Old Male in full winter dress. January.
6. Adult Female, breast. December.
7. Adult Female, back. December.
8. Adult Male, full eclipse. August. Breast.
9. Adult Female, full breeding dress. July.
10. Adult Male, full eclipse. August. Back.

Although she has the white wing patch, it is not so broad as in the other sex, and there is no chestnut on the middle wing coverts.

Unlike any other surface-feeders, the females of this species seem to be all of one type in point of colour—a uniform brown, with white breasts. In the summer the whole plumage becomes very much darker; the black-brown upper parts of the back and scapular feathers work more to the surface, and their light edges are duller and narrower. The breast, too, for the greater part, becomes heavily spotted, particularly so towards the vent. In the breeding plumage the female is easily distinguished from the male in eclipse by the *narrower band of white* on the outer web of the secondaries, which remains on the wing at all seasons, and there are *no chestnut feathers* on the median wing coverts. Moreover, in eclipse the male has many little jagged bars of grey on the upper feathers of the scapulars.

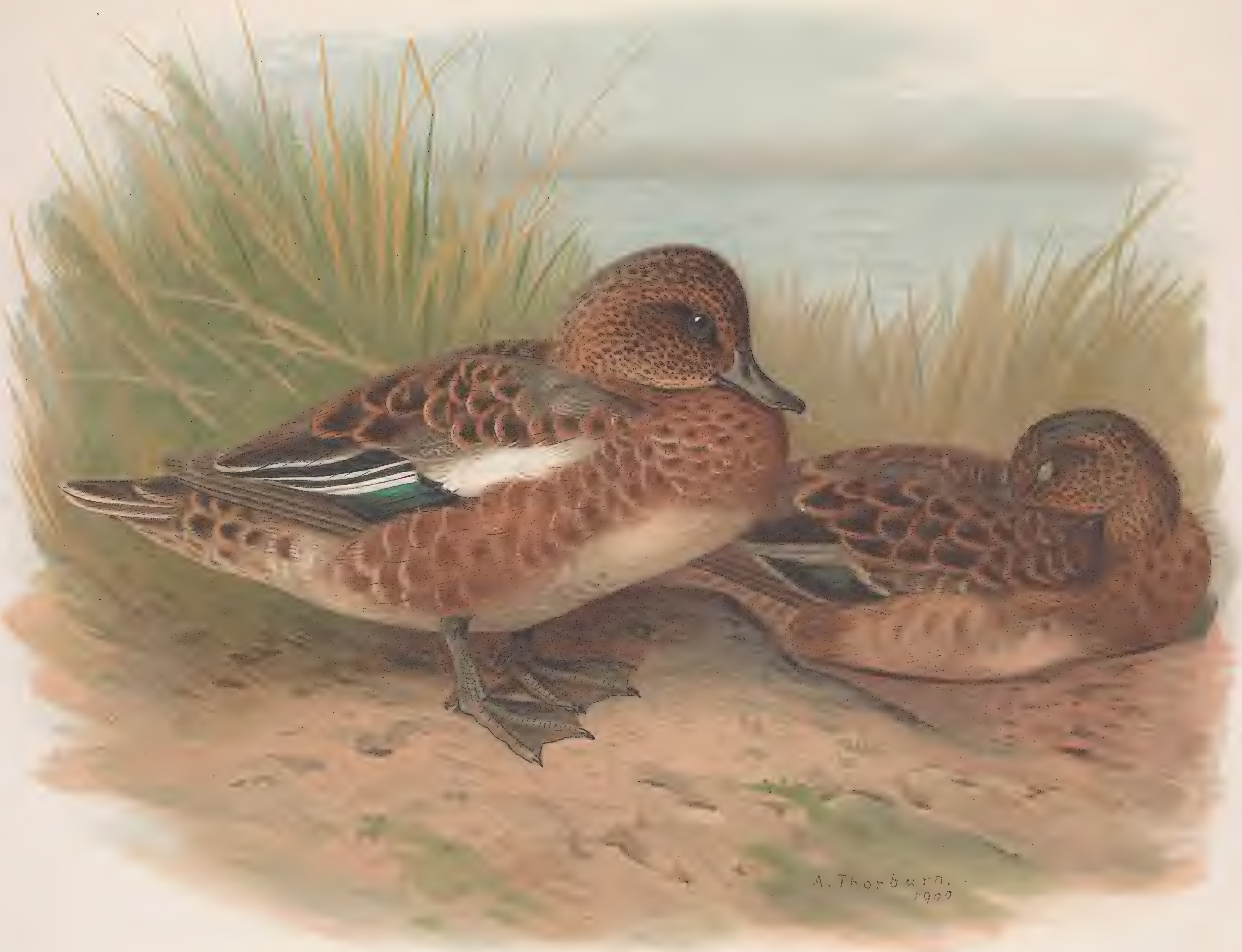
THE WIGEON

Mareca Penelope (LINNÆUS).

THE Wigeon ranges throughout Europe during the seasons of periodical movement. It breeds in all the northern districts of the Continent, in Iceland, the Siberian Islands, and probably in East Greenland, although its nest has not yet been taken there. According to Dresser, the Wigeon occurs in Asia as far east as Japan, and it is found sparingly on both the east and west coasts of Canada and America, its place being taken in the centre of the New World by the nearly allied *Mareca Americana*.

In winter the Wigeon is common in Turkey, Palestine, and southern Spain, and it doubtless occurs at this season amongst the great flights of duck which occasionally visit Algeria, Tunisia, and Morocco. The actual limits of its southern range are not well known; and it probably does not go so far south as the Pintail and the Mallard. Certainly the species is scarce in Egypt, though it is known to have occurred as far south as Nubia and the Red Sea littoral. Ruppell has also recorded it from Abyssinia.

Faber first noted the nesting of Wigeon in Iceland, and said that it is not so common there as the Pintail; a statement with which I do not agree, for either the distribution of these ducks in that island has materially altered within the last ten years, or his observations were confined to one small district. I found the Wigeon much commoner than the Pintail, and, generally, though sparsely, distributed throughout the island; whereas in Myvatn, where the Pintails breed, the Wigeon outnumber this species by ten to one. In the south of Iceland, however, the Wigeon seems only to occur on migration. I saw two or three parties of them on the Sorg river in August, 1891, whilst


A. Thorburn.
1900

Litho. W. Greve, Berlin

WIGEON.

Mareca Penelope.
Adult male in eclipse plumage (August 1rst.)
and young male in first plumage (August 12th.).

PLATE XIV.

the natives there, though well acquainted with most of the ducks, did not seem to know the Pintail.

In the Faroe Islands the Wigeon is a scarce, but regular, visitor, and the late Mr. H. Müller, who had an unrivalled acquaintance with the birds of those islands, told me that a few pairs stay and breed there every year. In Norway the Wigeon is common in winter at the mouths of the fiords, and breeds in small numbers along the whole of the east coast, becoming more numerous in northern latitudes towards the Russian frontier. It also breeds in large numbers in Northern Sweden, Lapland, Finland, and Northern Russia, whilst Germany may be regarded as the southern limit of its breeding range. It is met with in small numbers in India, according to Dr. Jerdon, but becomes more numerous in Kashmir and the Central Asian lakes. Dr. Severtzoff says that it is met with throughout Siberia to Kamtschatka, and according to Mr. Howard Saunders it occurs as far south as Borneo, and a specimen has even been taken in the Marshall group, Polynesia. Dr. Elliott Coues has shown that the Wigeon obtained in the Prybilov Islands, off the north-west coast of Alaska, is not the American Wigeon, but *Mareca Penelope*.

In Great Britain the Wigeon is a common winter visitant, usually arriving in September and departing in March and April. It is specially numerous in the east of England, on the Yorkshire, Lincolnshire and Northumberland coasts. In the south it is fairly common as far west as Devonshire; but on the west coast it is scarcer, as feeding grounds are fewer and occur at greater intervals. Near the Scottish border it again becomes common. In a few isolated instances, Wigeon have stayed and bred in various parts of England, and of late years no one has been more successful than Mr. W. H. St. Quintin, of Scampston Hall, in establishing this beautiful duck. In May, 1900, I saw several pairs of wild birds nesting there. These are mostly the descendants of pinioned birds, and Mr. St. Quintin has found that after the initial difficulty of getting the pinioned birds to breed has been overcome, their free-flying descendants will mate and form a colony in the places where they were born.

In Scotland Wigeon are visitors in large numbers to the estuaries of the Eden and the Tay; and they are particularly plentiful in the Moray, the Beauly, the Cromarty, and the Dornoch Firths, as well as the Little Ferry—all these waters being tidal and on the east coast. On the west coast Wigeon are common in the Solway, the Clyde estuary and Loch Fyne; but with one or two exceptions the waters to the north-west are too deep and rocky to suit their tastes.

We first hear of the nesting of Wigeon in Scotland in 1834, when Sir W. Jardine and Mr. Selby took a nest on an island in Loch Laighal. Mr. Robert Gray, writing in 1858, considered that, at that time, it bred annually in some of the lochs of the Outer Hebrides, although no nest had been taken there. Soon after this, however, it became known that the species nested regularly in Ross and Sutherland, principally on the eastern side of those counties, and it is now quite established there, having also extended its range to the Naver district on the west coast, where I found it breeding on Lochs Remisdale and Syre in 1886.

It was not, however, until the year 1880 that a great southern movement took place in the choice of nesting places of this duck; and although I had always expected to find female Wigeon with young in my annual summer visits to Loch Leven, where the species now breed regularly, I never came across a brood or heard of a nest in the south of Scotland previous to 1883. Shooting, however, one day on Lord Moray's ground at Doune, in 1886, Winter, the keeper, told me that four years previously Wigeon had come in spring to the little lake on the grouse moor known as Loch-Ma-Haich, and had stayed and bred there regularly ever since. He also promised to send me in the following year old birds and young in July—a promise which he duly fulfilled. In 1888, I first had reliable information of Wigeon breeding on Loch Leven, and, in 1889, the first pair remained on the bog at Murthly and bred there. In August of that year my retriever caught a young bird unable to fly, whilst several times during that month I saw the old birds. Since then the increase in the number of breeding birds in the south of Scotland has been slow but most marked, and the species may now be considered to be an established resident from Caithness to Selkirkshire.

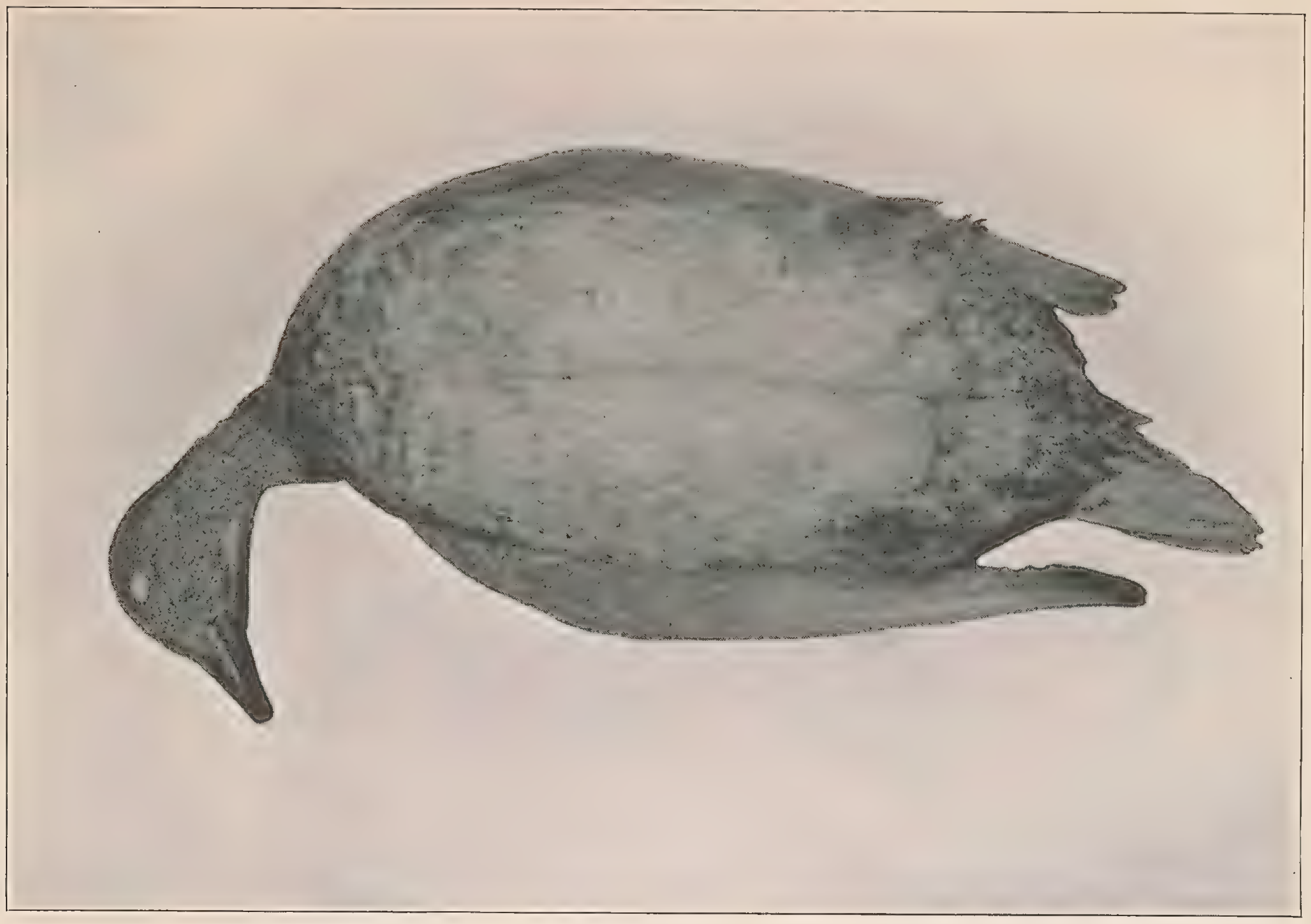
W. MacGillivray, writing in 1852 ('British Birds,' vol. v. p. 87) says that the Wigeon had never occurred in the Outer Hebrides. This is a somewhat perplexing statement for so well informed a naturalist to have made, as Gray, writing in 1871, says that the species was abundant over the whole of the Long Island in winter. And at the present day nowhere in Britain does such excellent Wigeon flighting occur as in one of the lakes at Newton, North Uist. For two years I rented a small shooting on the west coast of North Uist. I found the Wigeon arriving as early as August in small flocks. After this their numbers increased rapidly. By the middle of winter they are most abundant throughout the whole of the Long Island, South Uist, and Benbecula. Yet Mr. Harvie Brown, who has carefully studied the birds of these islands, has obtained no trustworthy information of its having bred there. In the Inner Hebrides it is likewise abundant in winter, being especially numerous in that fine duck resort, the Island of Tiree.

In the Orkneys Wigeon visit the islands in fair numbers every winter, being most numerous on Lochs Harray and Stennis, where I have seen packs of from 100 to 200 birds; but there are no good feeding-grounds, and it was always somewhat surprising to me that the birds were there in some numbers. There is a small pool situated in the little island of Damsey, where I often used to go to stalk seals, and here in rough weather Wigeon come in considerable numbers on winter evenings. The boatman, who accompanied me on these expeditions, told me that he used to visit this pool regularly in years gone by with Dr. Rae, of Arctic fame, and that that gentleman had on one occasion shot thirty-four Wigeon at 'flight.' The Wigeon now breeds regularly in Hoy.

In the Shetlands only a few Wigeon stay throughout the winter, although they are numerous both in spring and autumn when on migration, and Saxby stated that he had received eggs from Unst, Yell, and Hascosay, and there is little doubt that a few pairs nest annually in the islands.

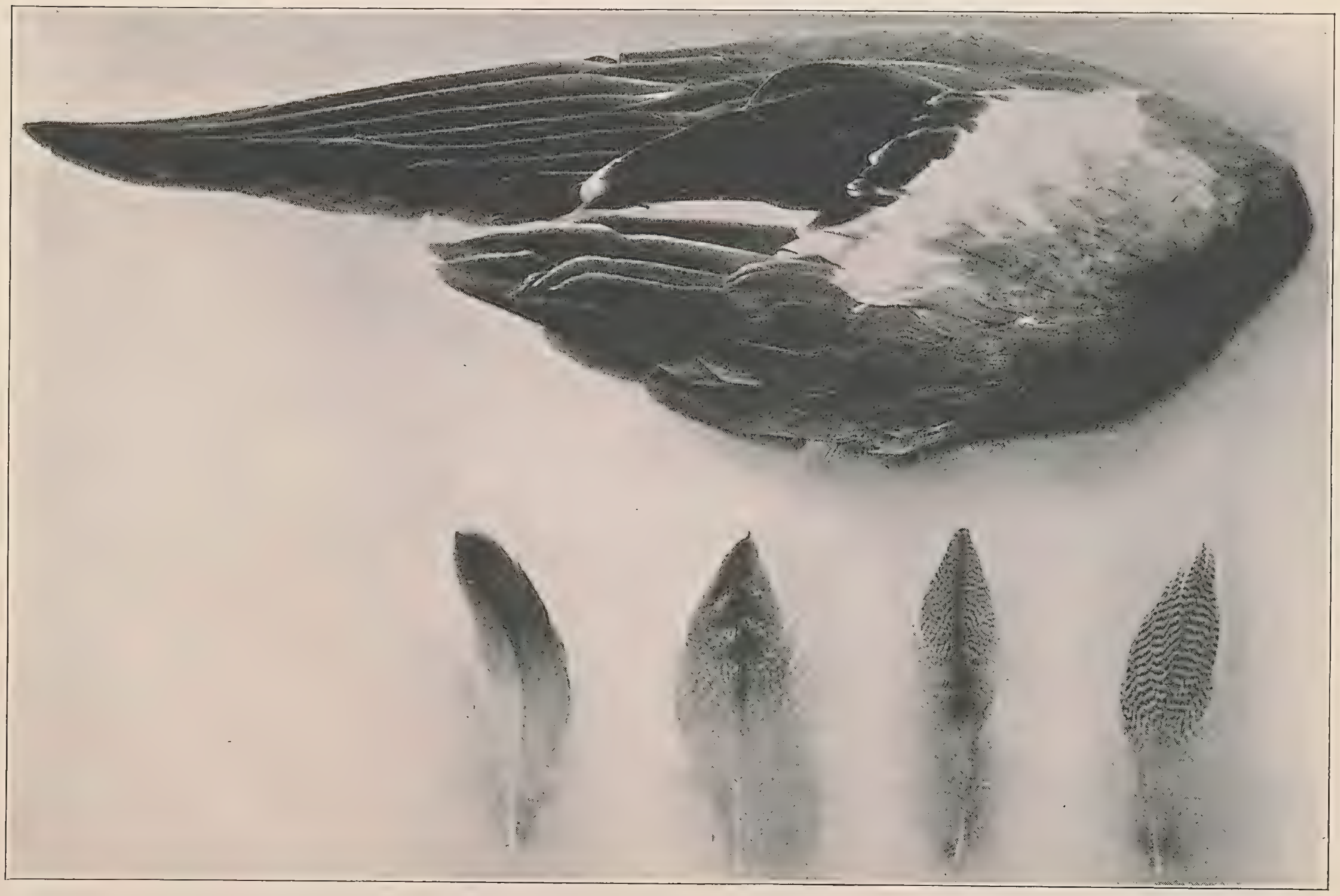
In Ireland Wigeon are abundant on the estuaries of the east coast, notably in Cork, Kerry, Waterford, and Wexford, where undisturbed they resort in numbers, also to the bays of Dublin, Dundalk, and the Loughs of Larne, Belfast, Strangford, Foyle, and Swilly. The birds prefer these large open sheets of water by day, as they are free from molestation; but they also frequent many small inland lakes where they are protected. The greatest number of Wigeon frequent the north and north-west coasts of Ireland; but in places like Belfast Lough, Mr. Ussher considers they have diminished in numbers owing to the increase in the number of gunners. The periodical movements of this species in Ireland take place at the same time as in Scotland, but fewer pairs breed in that country, according to Sir R. Payne-Gallwey. Lough Allen, co. Leitrim, the Granston Marshes, and the Shannon and Connaught lakes are mentioned by Ussher as breeding places.

Wigeon are more or less marine in their habits, and after arriving on our coasts, in September, they increase in numbers until December, when great packs are sometimes formed in estuaries suited to their tastes. They are the mainstay of the professional punt gunner, being numerous and always a marketable commodity, and it is interesting to note the appreciable change in the habits of the birds due to this enemy. By nature the Wigeon is not necessarily a purely nocturnal feeder. In his summer home, where he is subject to little molestation, he feeds regularly in the early morning and late evening, resting only during the warm hours in the middle of the day. Now notice what happens when he arrives on the British coasts. At first the small packs continue to feed in daylight, as during summer, but a couple of raking shots in their midst, carrying death and destruction, tell them that this is too dangerous, so they become purely nocturnal feeders for the remainder of the season, and rest or fly about by day well out in the firths or open sea, according to the proportion of harassment. Where Wigeon have been kept continually on the move, that is, after a series of gales sweeping over their resting-grounds, as well as when several shots have been fired at them on the mud flats, they sometimes assemble in immense flocks, either on the principle of mutual protection or that 'misery loves company.' I have on more than one



WIGEON.

Female in breeding plumage, showing how in rare cases we sometimes see a heavily spotted type as in Teal and Mallard.



WIGEON.

The wing of an immature drake, showing the upper wing coverts changing colour (February).
A feather from the back of an immature drake undergoing a complete pattern and colour change before it is moulted (October).

occasion seen the entire stock of Wigeon frequenting a certain firth merged into one great gathering, which could not have contained less than five to seven thousand birds.

In a regular feeding-ground, generally some long open stretch of mud covered with *Zostera Marina*, it is interesting to see the careful manner in which Wigeon approach it. The first little pack will come flying up against the wind and alight on the water, at about two or three hundred yards from the shore, after having previously swung round once or twice to ascertain that no enemy is approaching. This generally takes place when the tide is half-ebbed. Out on the water they remain packed close together and very quiet till the first green fronds of their favourite food are observed floating on the surface away inshore. Then the whole gathering begins slowly going shorewards, till, at last, one bird bolder than the rest swims in and commences picking at the floating weed. Even then they are subject to sudden fears, and, when about to follow their leader, will often suddenly put up their necks and swim rapidly out, the cocks whistling loudly. Once, however, they have reached the food, their taste for more generally asserts itself, and precautions against surprise are somewhat relaxed as they one and all move in to still shallower water and commence to turn upside down so as to pull up the *Zostera* and eat the root, by far the most succulent part.

Now other small packs keep coming in from the sea, and unless they are unusually watchful they will fly straight in and alight right amongst the feeding birds instead of swimming to them. In this way the big feeding pack is gradually formed, half of which move ashore to gutter about or tear up the roots, but keep within a short distance of the retreating water-line. It is on occasions like this that the punter in this country looks for his shot; but, in Holland, Mr. Popham tells me that nearly all the shooting is done at resting packs, for there the birds can be attacked with safety right out in the open waters—a mode of shooting that is both detrimental and highly dangerous in most British fowling-grounds.

Sometimes Wigeon, which are both conservative as to their beats and modes of life, will pay little attention to a vegetable diet, but live almost exclusively on animal food. Such I find to be the case with the birds living on the sandy coast near the town of Dornoch in Scotland, where all conditions are purely marine. The Wigeon here feed by day and live entirely on small cockles. This renders their flesh poor, bitter, and quite uneatable. I have shot a good few of them there and found all to be the same, whilst birds from the other side of the same firth, and living on the *Zostera* beds to the west of Tain, were fat and as good as Wigeon generally are. In spring Wigeon are great grass-eaters, and later on, like Teal and Garganey, they devour an enormous quantity of flies. One day in Iceland I observed with a telescope a small party of male Wigeon whose wives were engaged in domestic affairs, paddling along the edge of a small lake near Myvatn, and picking the flies off the stones in hundreds. This particular insect, a sort of stinging house-fly, is very nutritive and tastes like a piece of sugar. As you are obliged to eat plenty of them yourself, for they are always getting into your mouth, you soon get used to them, and swallow them with equanimity, and it is a common sight to see the Icelandic children of the Myvatn district picking these natural lollipops off their faces and eating them by dozens.

In certain northern firths, where Wigeon and Brent geese frequent the same ground, it is no uncommon sight to see Wigeon in small parties of half a dozen 'jackalling' the food which has been torn up by the large birds. The Brent can reach far below the surface and tear up the *Zostera* and they themselves only eat the root and allow the fronds to drift away. These are eagerly devoured by the Wigeon when they are hungry.

Of the general appearance, the sporting capabilities, and flying powers of the Wigeon I shall not speak again, as these points are fully dealt with in the first volume of this series.[1] I shall therefore only touch on certain points in connection with the natural history of the birds that have come under my notice.

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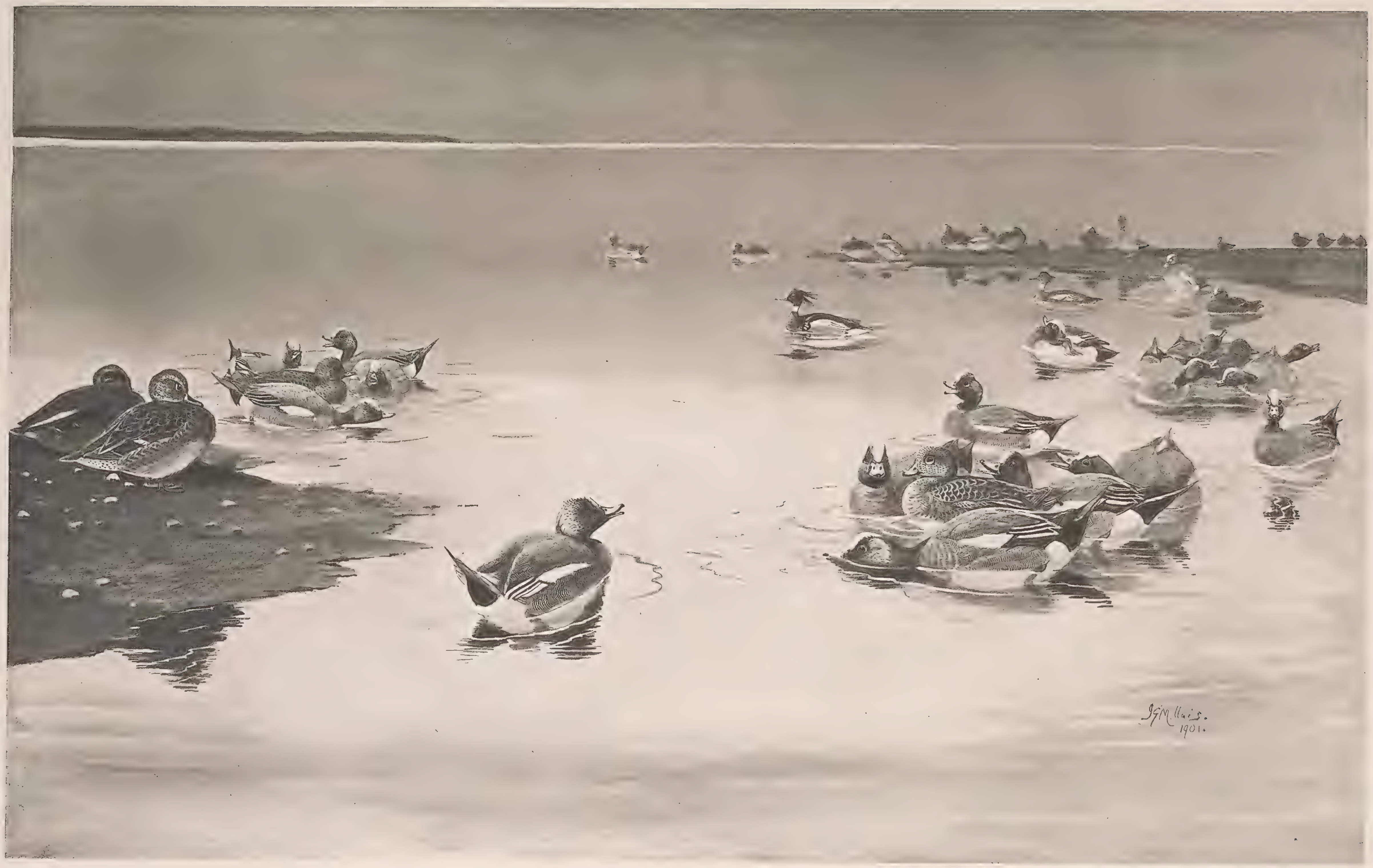
[1] *The Wild-fowler in Scotland.*


J G Millais.
1901.

Walter L. Colls, Ph. Sc.

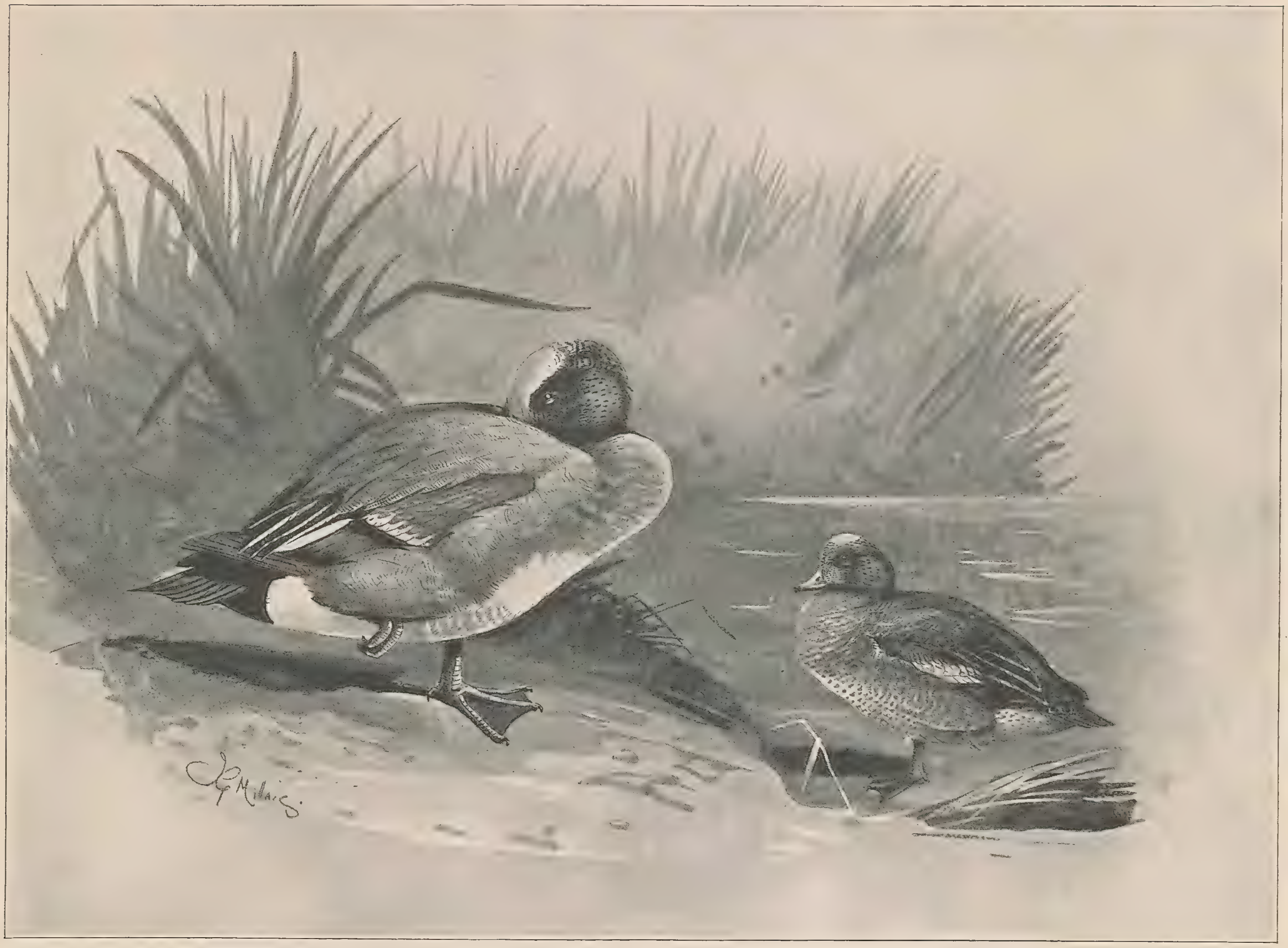
Wigeon courting.

As the spring approaches we see on fine days the flocks of Wigeon splitting up into smaller parties and engaged in pairing. By the end of March many Wigeon have paired, and proceed to their breeding grounds together; but in most cases the northern movement is undertaken in a series of small flocks, which gradually detach themselves from the main bodies. These small parties of from twenty-five to thirty birds follow one another in their migration, often stopping for a few days at some halting place, like the Shetlands or the Norwegian fiords, till, by the middle of April, none are left on our coasts except a few stragglers.

The actual courtship of the Wigeon differs somewhat from that of other surface-feeders, and the display of the male bird is an interesting one. A female having shown herself desirous of selecting a mate, five or six males crowd closely round, hemming her in on every side and persecuting her with their attentions. If she swims away, they follow her in a close phalanx, every male raising his crest, stretching out his neck close over the water, and erecting the beautiful long feathers of the scapulars to show them off. He also depresses the shoulder joint downwards, so as to elevate the primaries in the air. All the time the amorous males keep up a perfect babble of loud 'Whee-ous,' and they are by far the noisiest of ducks in their courtship. Occasionally the cock birds fight and drive each other off, but ducks are not, broadly speaking, pugnacious birds, and success in winning the admiration of the female is rather a matter of persistent and active attention than physical force. That Wigeon, and in fact all the ducks, will fight with a certain degree of pluck and determination, I have several times seen. In 1900 there existed a small enclosure under my dining-room windows where, as I sat at my desk inside the house, I could observe ducks at all hours of the day. In this space amongst others was a fine old cock Wigeon, and one day in October I placed there a freshly caught young male of the year. The old fellow went for him immediately, and seized him by the back of the neck, and a battle royal ensued, which lasted for ten minutes. The chief object of both combatants seemed to be to get the other underneath and forced to the ground, so that the back of the neck and head could be successfully shaken and thumped, and during the fight both flopped about on their breasts, and did not stand up on their feet, but propelled themselves about as in the water. In this contest, curiously enough, the young bird had far the best of it, and after it was over the newcomer invariably drove the old bird out of the way, and the two never fought again. A fortnight after this contest I again placed a freshly caught young cock Wigeon in the pen, and again the old cock gave battle with similar results.

Though the Shoveler may be said to do the same thing, the cock Wigeon is one of the very few birds in existence that will pair, and probably breeds with the female whilst he himself is in the immature state of plumage. This is an important and interesting fact in the life-history of some of the surface-feeding ducks, for we know that it is a strict rule amongst birds that they do not breed until both sexes have attained the perfectly adult plumage. In many cases I believe that various species of birds would breed whilst in an immature plumage were it not for the want of fitness in giving battle, and their inability to fight successfully with the adult males. Where adult males are in sufficient numbers at the breeding grounds immature males, that is, young males of the previous year, whose plumage is not quite complete in the following breeding season, have no chance to acquire wives, as the older and stronger males drive them away; but when, as occasionally happens, a greater number of females come to the breeding grounds unattended by a sufficient number of adult males, these immatures get their chance to pair and probably breed with females without having to fight for them.

Certainly I have seen more than once young male Wigeon with the brown-grey shoulders of what we understand to be immaturity, paired with the female; but, as I hope presently to show to my readers, this bird is in no way really different from what we accept as the perfectly adult bird with pure white shoulder, because it is practically the same, as the upper wing at this period is not attained afresh, but only changes colour. So the two birds must be physically similar though slightly different externally.



WIGEON.

Left figure.—Immature male (8 months), showing plumage completed, except the dark upper-wing coverts.
Right figure.—Immature male (7 months). A very rare type, with spotted breast.

The nest of the female Wigeon is generally placed at from ten to twenty yards from the nearest water, and generally in coarse grass or heather.[1] Sometimes, like the Mallard, she will wander far in the tundra, and one of the only two nests I have found in Scotland I stumbled on by accident right in the middle of a grouse moor, and far from the lake near which I had been searching the whole morning. Generally from seven to ten cream-coloured eggs are laid.

Like others of the family, the Wigeon drakes abandon the ducks as soon as the latter commence to sit, and form small parties which keep together out in the lakes or broad rivers of their summer home; and it is, I think, some evidence of the accepted maturity of the young brown-grey drakes that the old white-winged birds permit their companionship at this season, because in all species of birds where immaturity precludes breeding, the adult force the young non-breeders to form flocks of their own and live apart. By the middle of August the old females and young begin to join together, and are generally the first to commence the southern migration. These are then followed, in September, by the stragglers and males with brown shoulders moulting into white, and adult males still in nearly complete eclipse but showing the first signs of winter in the upper scapulars. When all the males arrive they mix indiscriminately with other Wigeon, and so the addition to the ranks is swelled gradually until November, when the large winter packs are formed.

The call of the male Wigeon is a loud 'Whee-ou,' a note both wild and musical, and dear to the heart of every gunner that has wandered on the coasts; it also makes a very peculiar 'cheeping' note (rather like the call of the twite) when frightened. The female also has two calls, both somewhat similar yet quite distinct, both a sort of throaty croak, one being used to attract the attention of others of her species; the other, somewhat harsher, is emitted in moments of fear.

Wigeon will occasionally cross with other surface feeders, and I have seen hybrids with Mallard, Pintail, and Teal; whilst it is said to have also mated with the Gadwall. In the spring of 1899 Mr. St. Quintin picked up a duck's egg on the banks of the beautiful lake river where he keeps his waterfowl at Scampston. This egg was set, and eventually a young bird was reared and reached maturity. This creature, a female, turned out to be an extraordinary hybrid, namely, a female cross between a Wigeon and a red-crested Pochard (*Netta rufina*). This is a particularly interesting specimen, from the naturalist's point of view, as it is a hybrid between a typical surface-feeding and a typical diving duck, two separate families, which were not the least likely to interbreed.

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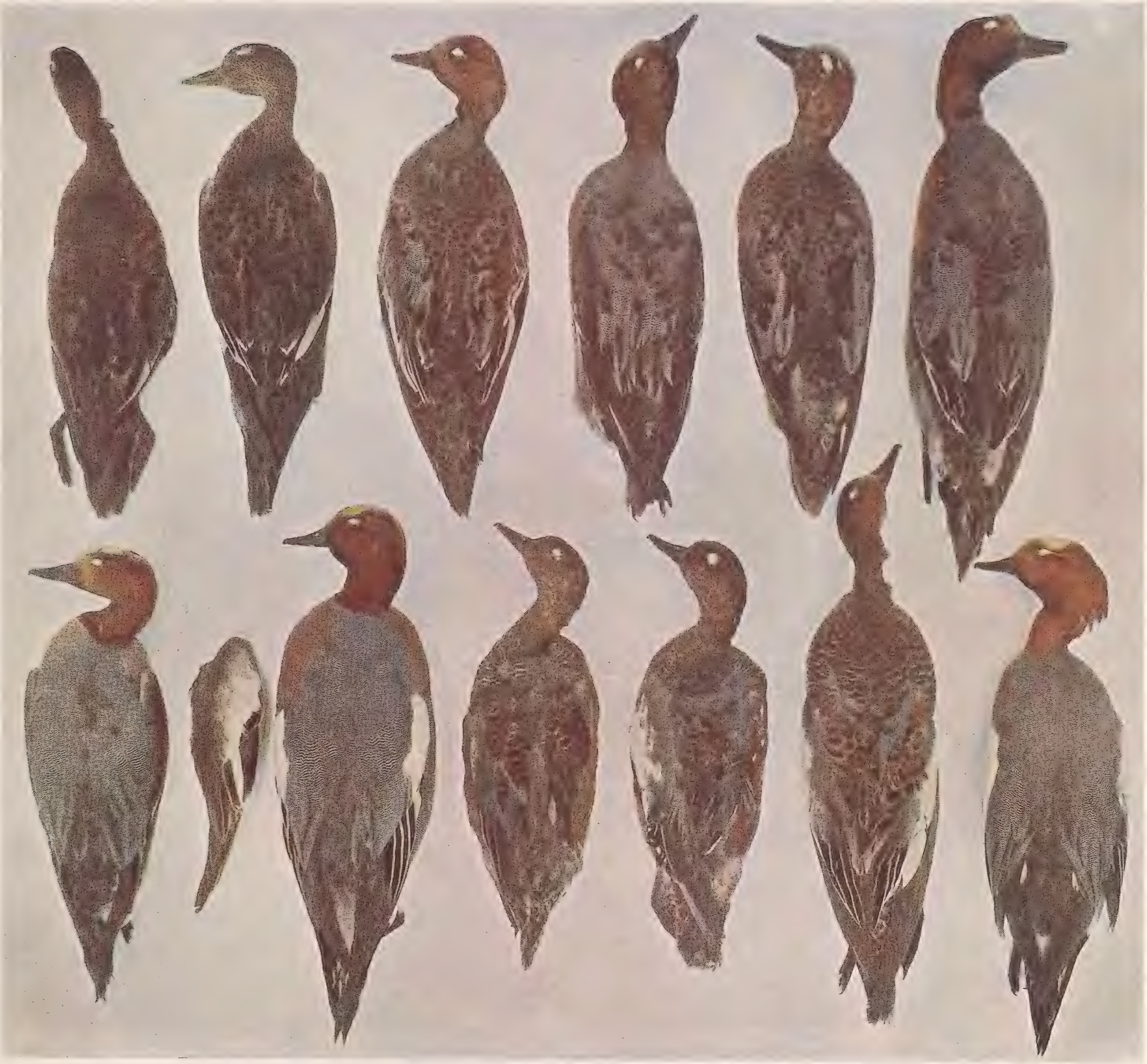
[1] A nest I saw at Scampston, Yorks, in May, 1900, was placed in nettles.

THE YOUNG MALE WIGEON

Plumage change.—Certainly one of the chief difficulties in explaining the changes of plumage of the surface-feeding ducks lies in their irregularity and the difference in duration of time between the first plumage and that of maturity. In the case of the Mallard and the Teal we get the quickest and simplest transition. The young bird arrives at what is practically its mature plumage sometimes as early as the end of October, or at latest by the end of November. The Garganey and the Gadwall do not reach their mature plumage until March. This is also generally the case with the Pintail, but not always, for I have seen young males of this species still retaining traces of their first plumage as late as the beginning of July in their second year. Now the Wigeon and the Shoveler present such unusual irregularity before they assume the full dress, that the explanation of the changes requires careful elucidation. The case of the young male Wigeon was to me, at one time, particularly perplexing, as I was unable to make up my mind whether they obtained their full plumage at the end of the first year or the middle of the second.

At first I handled birds in March which were in full plumage even to the white wing, and which, I felt sure, were only young birds of the previous year; whilst afterwards, in the breeding stations of the Wigeon, both at home and



WIGEON. Males.

1. Young Male in first plumage, August

2. Young male in September showing first grey feathers of Winter plumage on his scapulars.

3, 4, 5. The general advance of his winter dress in October, November and December.

6. A December bird showing colour and pattern change amongst the first plumage feathers of the back.

7. Young Male. February. The plumage nearly complete except the dark grey shoulder.

8. Showing the shoulder actually changing colour without a moult. February.

9. A young Male in full Spring dress at 6 months. Usually the brown-grey shoulder is retained as in the next bird.

10. Young Male in eclipse dress. July. The brown grey wing not yet moulted.

11. Young male. September. Age 15 months. The brown grey shoulder moulting. A week later this bird cannot be distinguished from the next figure.

12. Old Male in eclipse. September

13. Old Male, full winter dress.

abroad, I saw flocks of immature drakes as late as the month of September, in full eclipse plumage, *but with the wings still in the brownish-grey of immaturity.* By shooting a number of males at all seasons, and also keeping them in confinement, I can now definitely state that a percentage, perhaps a third, of the young males which are *forward* birds will obtain their full plumage in March, before they leave us for the breeding grounds, and that they obtain the white wing by means of *a colour change only.* The majority of young males, however, leave us with the brown-grey wing, change in June and July into the eclipse plumage, but still retain this brown-grey wing until August or September. A moult then takes place, and the birds get the white shoulder of the adult male. Thus the bird comes back to us, having only just obtained the plumage of completely adult males at that season. An important fact to notice is that young males in moulting their primaries in August or September are never incapable of flight like old males, for they moult their quills alternately, or in small patches, and so always have a sufficiency to bear them in flight. The young Wigeon in down is easily recognised from the young of other surface-feeding species, by its comparatively large body and small head and bill. In about four weeks it obtains the full first plumage. The breast is then generally white, almost from the vent to the lower part of the throat; but in certain specimens it is spotted throughout. The young male is usually somewhat darker than the young female, and he may be readily recognised from her by the one or two grey-ribbed feathers, which appear almost at once between the thigh and the tail coverts, and a certain grey feather with ribbings on its edge which always appear at the end of the scapulars.

In the case of the male Wigeon trending towards maturity, and even in the case of adult males changing from the spring to the eclipse plumage, or back again from the eclipse into the winter plumage, we fail to notice the extraordinary colour sympathy which is seen in the Mallard drake in all these stages. That a certain amount of colour change does take place, and at some seasons to a considerable extent, is perfectly evident; but in the case of the Wigeon, nearly all the transitions of plumage are performed with a directness and force of contrast that is somewhat surprising. For instance, in the gradual change of the young male Wigeon, which takes place between September and February, there is only a slight grey suffusion and pattern change over the brown feathers of the back; the sides and often the back of the neck obtain certain bars, but all the rest of the plumage, except the wings and tail, seems to undergo the usual moult, which gradually takes place through these months; the new feathers themselves coming in, not with any half-measure compromise with first plumage feathers, but in the full completion of the winter dress. The great flush of new feathers, including a new tail, seems to take place in March or April, just when the birds are about to leave us, and it is then that the most remarkable transition is seen.

The young male may now be said to have changed its complete plumage, except the wing, to that of the adult; and as the wing never moults at this season of the year, in very well-advanced birds, the greater part of the shoulder above the secondaries now changes colour from brown-grey to white. Thus the bird appears in full plumage, *although it has not yet undergone one complete moult.*

As I previously stated, the majority of the young males do not change the colour of the upper part of the wing at this period; but court the females, pair with them, and retire to the breeding grounds whilst still retaining outward appanages of youth.

Both young and old males begin to assume the eclipse plumage about the same time, *i.e* as early as the beginning of June, or as late as the beginning of July;[1] but this, of course, varies with geographical distribution; and though practically the full brown dress at this time is assumed by the young male with dark wing, he still retains the dark wing till August or September, when he completely moults his wings, and becomes exactly the same as the fully adult bird.

In the case of exceptionally backward young birds the greater part of the

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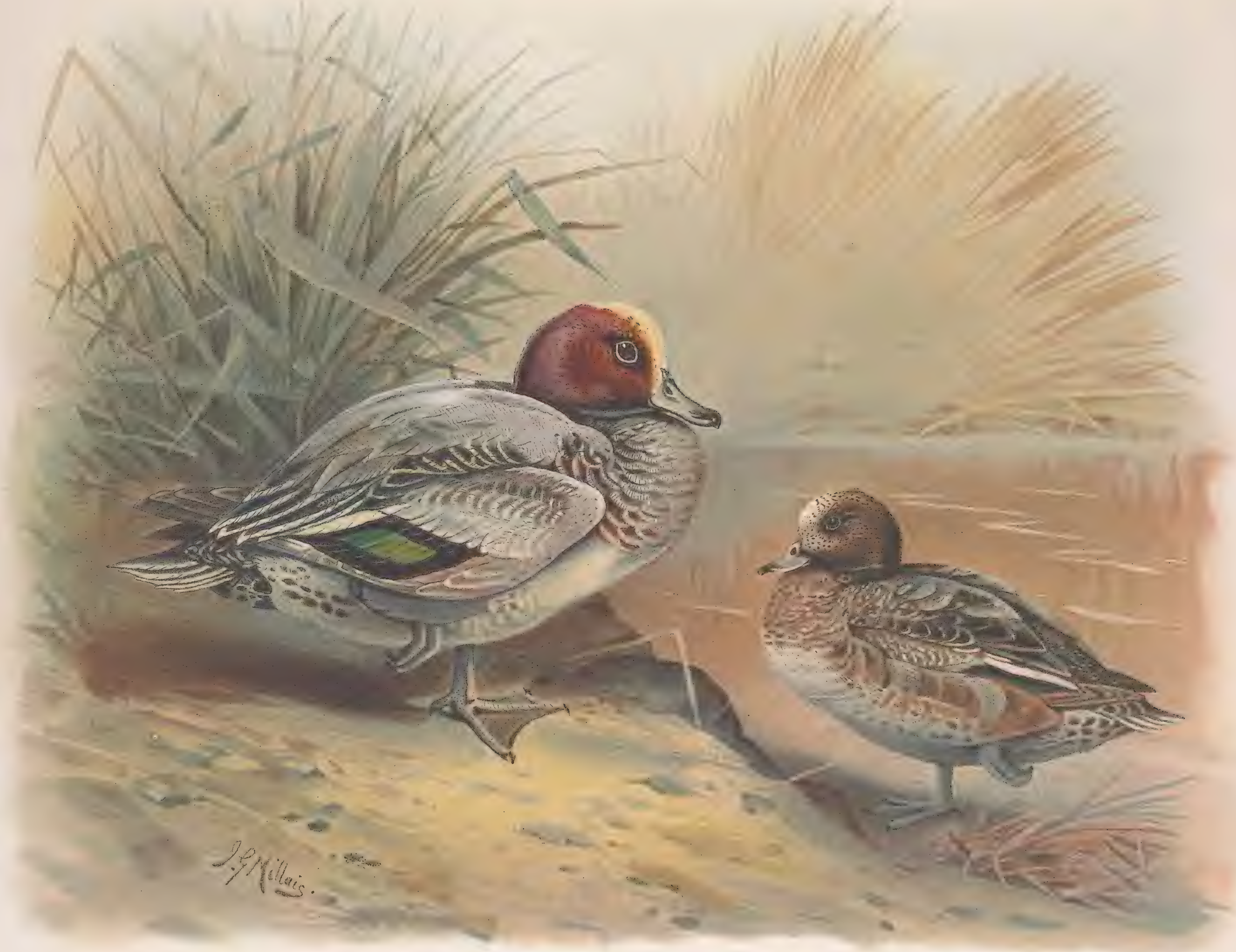
[1] The new richly coloured red-brown flank feathers of young males in eclipse are sometimes ribbed with grey when they first come in, apparently in sympathy with their late plumage; but these immature markings soon pass away.

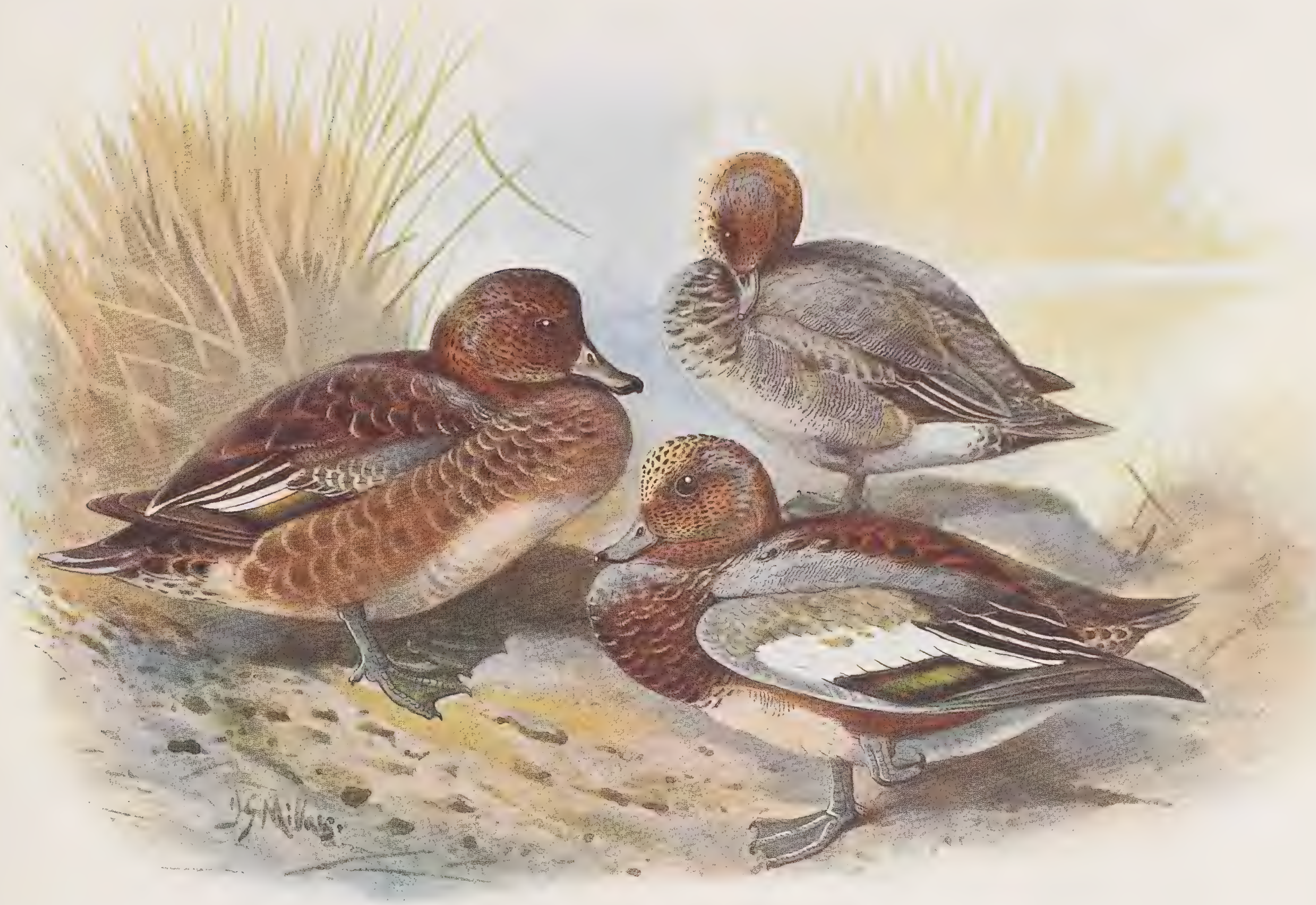


Litho. W. Greve, Berlin

PLATE XVI.

WIGEON,

Mareca Penelope.
Immature males in December, 7 Months old.



WIGEON.

1. Immature male, eclipse plumage, age 13 months.

2. Very old female assuming the male plumage.

3. Immature male coming out of the eclipse plumage into winter dress, age 16 months. Note the last traces of the first plumage on the wing shoulder. These will fall out in the following month and the bird will be in full adult plumage.

PLATE XVII.

back and head in first plumage feather is sometimes retained right on until the following July—that is to say, until the bird is thirteen months old. The bird will then obtain his full eclipse plumage (of course, without the wings changing) *without even having passed at all through the stage of grey with red head and yellow cap.* An example of this somewhat rare phase is given in plate facing page 48.

Whilst Wigeon are subject to both light and dark forms it is not very rare to see amongst the young males a curious spotted type. I have seen a good many of these aberrant forms, and have shot two myself, one of which, a very richly marked specimen, is figured facing page 46. These birds, whose lower parts are spotted from breast to vent, are nearly always young males; when this first plumage is cast they become as other males, and there are no traces of the spots left.

The Adult Male

Spring plumage.—Weight 1 lb. 12 ozs. to 2 lbs.; length 18 to 19 inches; wing 10·5 inches. Bill, blue-lead colour with black point; legs and toes dark brown with lead tinge; forehead and crown buff; cheeks and back of neck chestnut suffused with green; throat and upper neck chestnut; chin black; flanks and mantle vermiculated grey; shoulder white, followed by a bar of black, below which the secondaries have a bright green wing patch edged with black, primaries and tail grey-brown; under and upper tail coverts black.

As I have dealt somewhat exhaustively with the great summer and autumn change in the case of the Mallard, it is not necessary to reiterate particulars of these changes in the other surface-feeding ducks, except where slight variations take place, for all the surface-feeders alike pass through the somewhat complicated changes of single and double moult as well as the various colour changes. In the case of the Wigeon, Pintail, Teal, Garganey and Shoveler, we do not, however, notice quite such a *gradual* blending of tints as in the Mallard, except in certain minor parts; for the whole of each new plumage, especially in the case of the eclipse, there is a more sudden acquisition of *complete* colour. This is, of course, due to the new feathers coming in in a complete state.

The adult male Wigeon may commence to change into his eclipse dress any time in June or the beginning of July, and in specimens which I have kept in confinement the full plumage was assumed by an almost direct moult, with little if any colour sympathy taking place either in the old or the new feathers, except on the head. Here I noticed that nearly all the old feathers, especially on the crown and cheeks, a few days before they were shed, turned very pale, and became furnished with the dark brown spots of the eclipse.

As with the Mallard, the eclipse plumage of the Wigeon drake is dormant till about August 12, when it undergoes very much the same course of colour change and gradual moult as the former species. Through the end of August we notice some really beautiful colour changes taking place; notably in the richly marked scapulars.

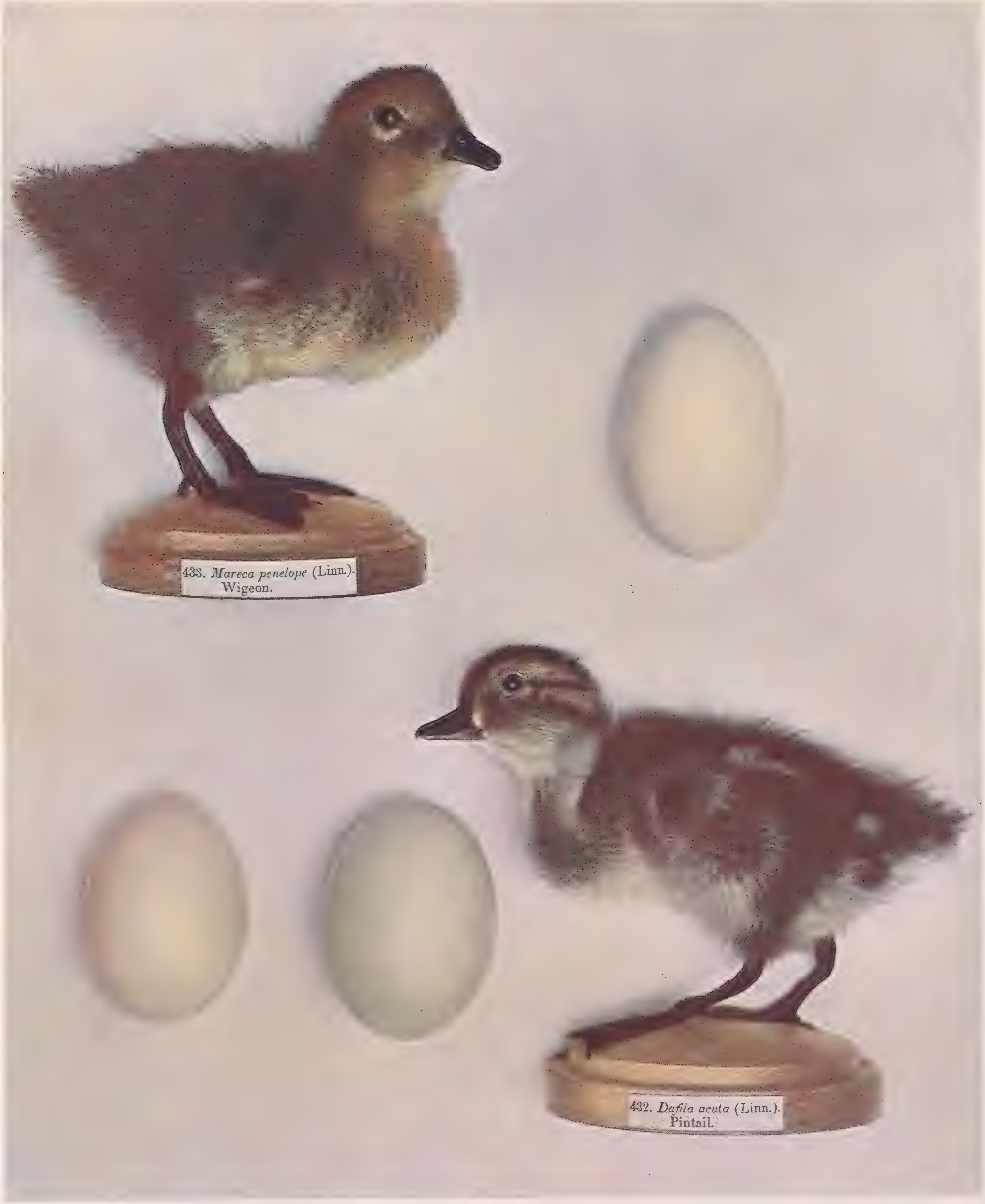
The change which takes place about the end of September in the splendidly rich red-brown feathers of the flank too is a really remarkable colour change. In some cases these richly coloured feathers simply turn pale and moult, whilst their places are taken by new winter ones; in others the most perfect colour changes take place, one half of the old feathers being pure red-brown, the other half grey with dark ribs, whilst the new feathers come in with precisely similar colouring (see coloured figure facing page 52).

So the colour change and the moult goes on till the bird is clothed in its complete winter dress, at times as early as October 10, and as late as November 20.

THE FEMALE WIGEON

The young female Wigeon in first plumage resembles the young male very closely until the end of August, when the latter are easily distinguished by the advent of a few grey feathers, and they are moreover rather darker. There is

PLATE XVIII.


433. Mareca penelope (Linn.).
Wigeon.
432. Dafila acuta (Linn.).
Pintail.

WIGEON.

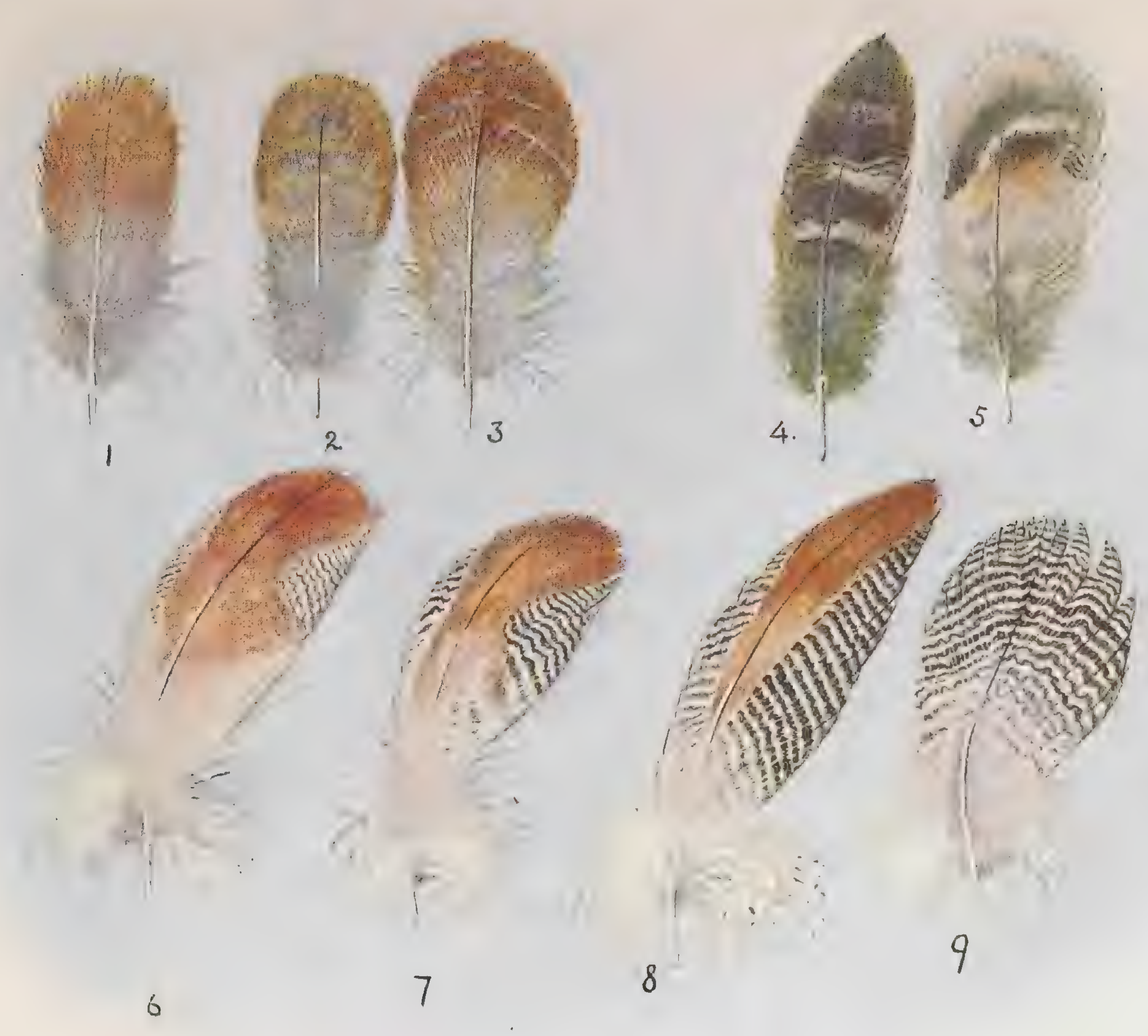
Young in down, 2 days old.
Size of life.

Egg of the Wigeon.
Size 2·3 by 1·5 inches.

Eggs of the Pintail showing extreme types.
Size 2·1 by 1·5 inches.

PINTAIL.

Young in down, 2 days old.
Size of life.



WIGEON. Male.

Some interesting feathers showing curious colour and pattern changes.

1. A normal flank feather from a young male in first plumage, September.

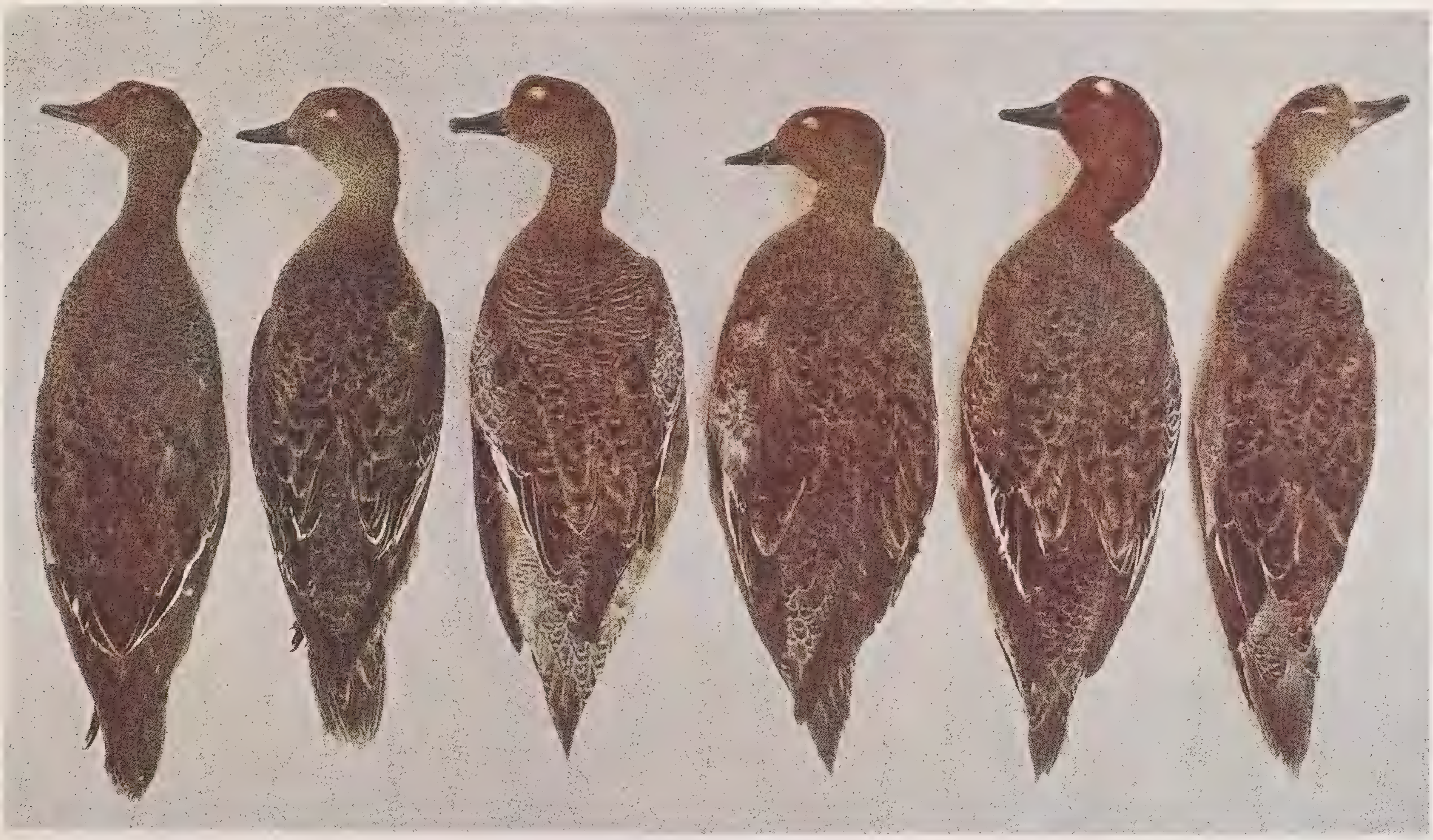
2, 3. Two flank first plumage feathers, November. These show a curious colour and pattern, change taking place just before their fall. Their place is taken by vermiculated feathers of the adult male.

4, 5. When the big flush of the moult takes place in plumage of the young male in spring, all the new feathers that come in are not always similar to the adult. In backward birds some appear like these (no. 4 from the mantle, no. 5 from the side of the lower neck). These feathers are, therefore, in direct sympathy with the old first plumage, and will, according to the condition of the individual, soon change colour and pattern similar to fully adult feathers.

6. A flank feather from the eclipse plumage of an adult male, October. This feather is about to fall, and shows well the sympathy of colour and pattern for the new winter plumage. All the centre is still eclipse, but the outer edges are faintly similar to the winter.

7, 8. New winter feathers from the flank of an adult male, October. These have entered in an interesting half sympathy with the vanishing eclipse. The red brown in the centre will presently disappear and give place to an extension of the dark jagged bars across the feather.

9. A flank feather from an adult male, October, coming in in complete form.



WIGEON. Female Types.

Immature female in first plumage. September 1st.

2. Immature female, November. In March there will be a flush of new adult feathers and the bird will be more or less mature.

3. Adult female of the barred type, December.

4. Adult female, normal type, December.

5. Adult female, with red brown head and black chin, a somewhat rare type, December.

6. Adult female, breeding dress, June.

PLATE XIX.

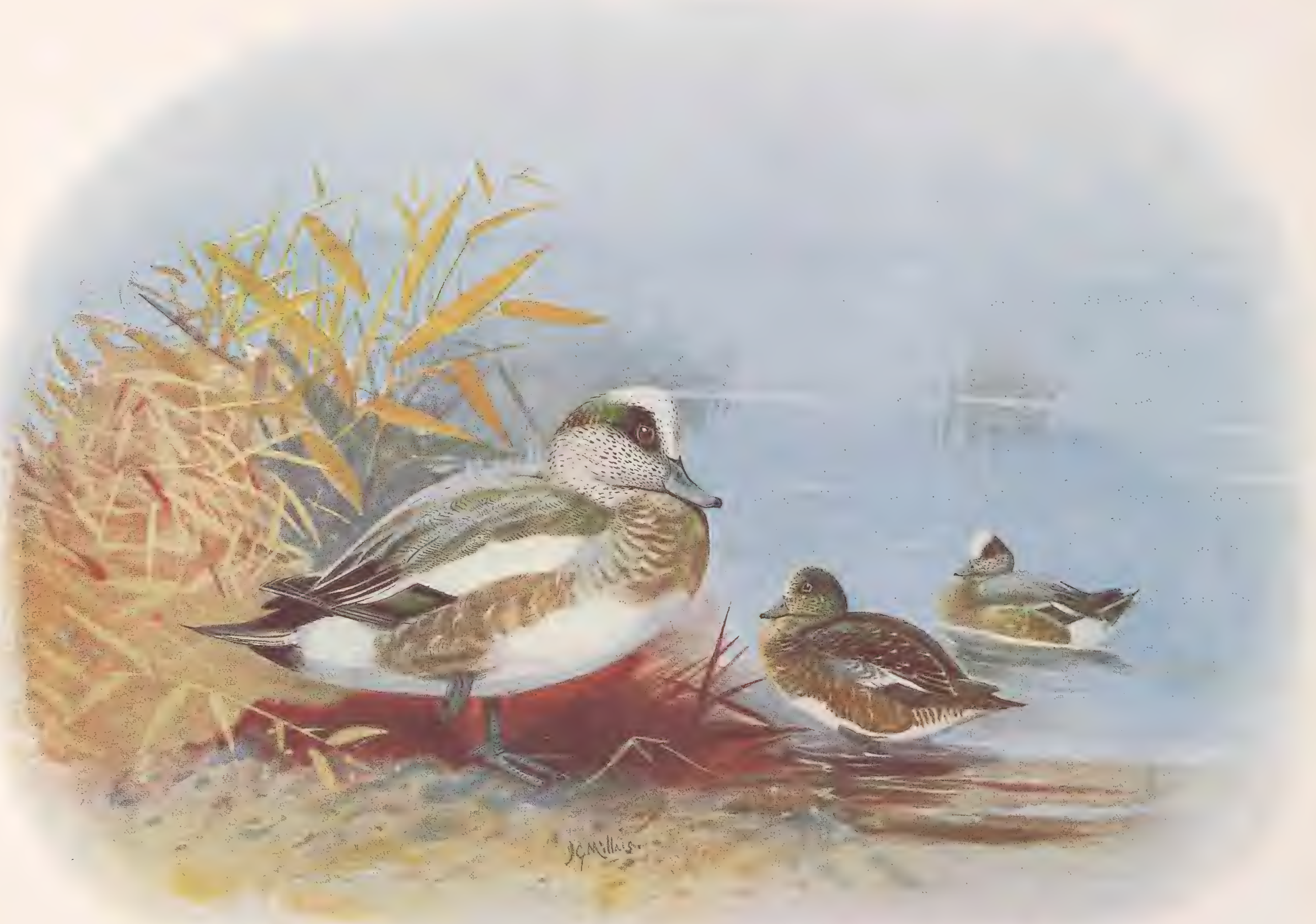
nothing particular to note as to the manner in which any of the young females of the surface-feeders gain the full plumage of the adult. As a general rule there are no colour contrasts to be overcome, so everything is gradually changed by the winter moult. The whole new dress is obtained sometimes as late as the following April or May, and all feathers have then been renewed except those of the wing, which are retained till the usual summer or autumn shedding.

Adult female Wigeon present three very well marked types—the grey form, the red-brown form, and a curiously pale red-brown form, with many transverse bars across the neck and scapulars. This latter is the only uncommon form, and by far the most beautiful. These specimens also usually have all the shoulder feathers of the wings well edged with white.

The grey and the red-brown forms are generally distributed in this country throughout the winter, although the latter is by far the commoner of the two. Both types curiously alter little during the breeding season, each retaining their general individual tone of colour, and, except that they both show a slight tendency towards a darker colour, change on the inside part of several of the neck and scapular feathers which turn very dark, they really alter less at this season than any of the surface-feeding ducks. As a rare exception to this, I have seen a single specimen of a female Wigeon shot from the nest in Iceland, in 1899, which showed a remarkably dark type. The breast was heavily marked with brown feathers (see figure facing page 42).

According to my experience, there is no female of any of the ducks which is so prone to assume the plumage of the male as the Wigeon. I have seen several in the almost complete garb of the adult male plumage, and have myself shot three in a half-assumed state. That this curious assumption of the male plumage is by no means uncommon I have little doubt; but the fact of such birds so very closely resembling the young male, and being indistinguishable to anyone except the expert in such matters, could easily account for the fact not having been previously noted. We frequently hear of the female wild duck assuming the plumage of the male after the power of egg-laying is past, but this is due to the enormous number of these birds which are kept in confinement; whereas the number of Wigeon under close observation is comparatively few.

Nearly all old female Wigeon show a tendency towards the plumage of the old male by getting a much lighter and sometimes a nearly white shoulder.



THE AMERICAN WIGEON.

(Mareca Americana.)

Adult male, female, and young male, 8 months.

PLATE XX.

THE AMERICAN WIGEON

Mareca Americana (J. F. GMELIN)

THIS New World representative of our Wigeon breeds in summer in Alaska, and in all the northern lands of Canada to Hudson Bay and Labrador. It nests in Minnesota, and a few as far south as Wyoming and Texas. With the first breath of winter great companies of 'Bald-pates,' as they are everywhere called in America, come out of the north, moving south throughout the continent, and eventually wintering in all the Southern States and Mexico. Some go as far as Cuba, Guatemala, and northern South America, and remain there until the month of April before again proceeding north to breed. In the summer of 1899 Mr. F. Goburn made his interesting discovery that the American Wigeon visits two districts in North Iceland for breeding purposes. This is the first instance of the species nesting in the Old World, and when the ornithology of East Greenland is better known we shall probably find that the bird is also common there.

In Great Britain the American Wigeon must be regarded as a very rare visitor, and Mr. Howard Saunders recognises as authentic but two instances of its capture in this country. In France it has been taken once, as well as in the Azores; but there is little doubt, from its resemblance to the European bird, that many have occurred with us but have been unnoticed.

In America the 'Bald-pate' is far less marine in its habits than the European Wigeon. There in winter its favourite resorts are the rice-fields of the south, and wild celery beds of the Chesapeake country, where thousands are annually slaughtered by men in 'sink boats' who shoot for the markets. The work of these gunners is most unsportsmanlike, but effective in its destruction. By using a naphtha lamp with a brilliant reflector behind it, the dazed ducks come swimming up alongside, and the shooter can frequently kill twenty or thirty birds at the single discharge of a shoulder gun. Around the Chesapeake the American Wigeon betray the same parasitical tendencies that I have noticed in their European prototypes, namely, the utilisation of other birds to procure their food. In Scotland I have seen the Wigeon in scattered parties following the big flocks of Brent geese, and eating the discarded portions of the *Zostera*; I have also seen them take Coot's food by force. On the Chesapeake the 'Bald-pates' jackal to the 'Redheads' and 'Canvas Backs,' and they even attack both, and by their superior activity wrest the *vallisneria*, or eel-grass, from its rightful owner. In great masses of duck, such as are to be seen on the Chesapeake, such acts of piracy keep the various species of ducks in a state of continuous restlessness. The 'Bald-pates' too, from their constant movement and false alarms, keep all the ducks on the *qui vive*, much to the annoyance of the hidden sportsman, whose desire is the more delicious and valuable 'Canvas Back.'

Except that their food grows in less marine and exposed situations, the general habits of the American bird are practically similar to our own. Their modes of courtship, which I have once observed, are also precisely similar, as is also the call-note of both male and female. In the case of the 'Whee-ou' of the male it is not nearly so wild and strong as our bird, but produced in a similar manner.

The nest of the female American Wigeon is usually placed in high and dry ground at some distance from the water, and sometimes under trees or bushes. She lays from seven to twelve buff-white eggs, size 2·1 by 1·5 inches. Several American naturalists are of opinion that the young are carried to the water in the bills of their mothers; but this is not the habit of any other surface-feeding duck, and the statement is not one that should be accepted. The European Wigeon, the Teal, and the Mallard sometimes nest quite as far from the bogs and lakes as the American Wigeon, and they lead their broods over land all the way; and it is extremely unlikely that so closely an allied species should be different in this respect.

THE PLUMAGE OF THE AMERICAN WIGEON

Adult Male (Winter).—Weight 2 lbs. 2 ozs. to 2 lbs. 6 ozs.; length 18 to 20 inches; wing 11 inches. Bill blue-grey with black tip; legs and feet grey over brown; forehead and crown white or buff; sides of head, from the eyes to nape, bright green interspersed with black bars; cheeks and throat buff, dotted and barred with black; upper breast and sides reddish, and each feather edged with grey, feathers above the thighs being finely vermiculated with black; belly and vent white; under tail and tail coverts black; back grey-brown, vermiculated finely with black; lesser wing coverts white, the greater tipped with black; a bright green patch on the secondaries.

All the plumage changes of the American Wigeon are similar to the European bird, young males sometimes obtaining their complete plumage in the first spring, but more often retaining the immature wing into the eclipse, and moulting into complete winter plumage when seventeen months old. The old male in eclipse plumage more closely resembles the female of his own species than our drake Wigeon—his flanks are very grey-brown, and not that rich, red-brown colour seen in our bird.

Adult Female.—The female American Wigeon is smaller than the male. She has the head and neck white and speckled, with broader and blacker bars than our Wigeon; although she very closely resembles our bird, the markings are all more pronounced. There is, however, not so much red-brown on the flanks or breast, and the western bird is darker on the back. In first plumage the two birds so closely resemble one another that it is impossible to give any specific characteristics.

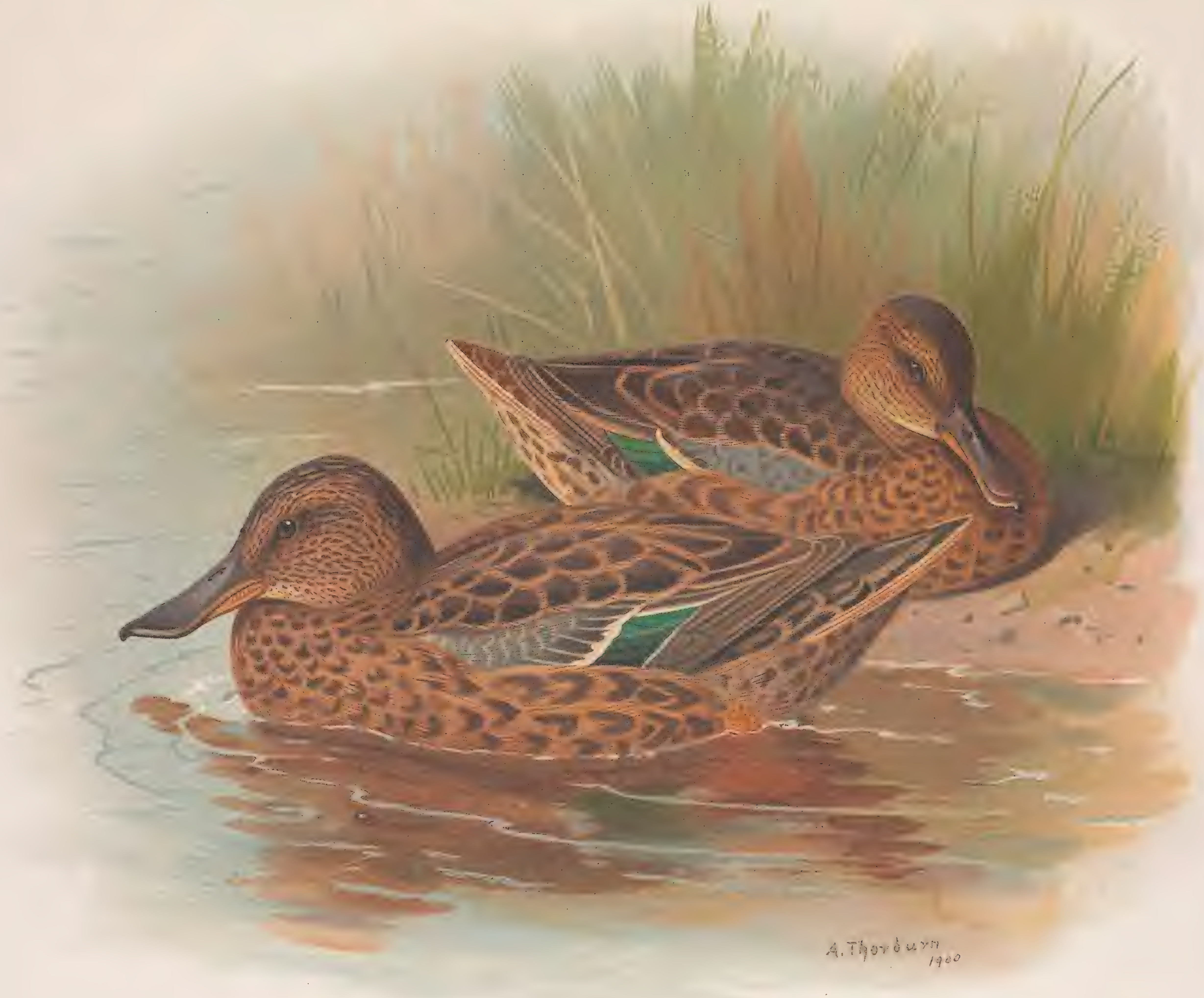
THE SHOVELER

Spatula Clypeata (Linnæus)

Except, perhaps, the Pintail, none of the surface-feeding ducks which visit us have such a wide range throughout the world as the Shoveler. It nests in most of the intervening countries from Archangel, in the Arctic Circle, to Algeria, and in winter it is abundant in Egypt, and even extends its migrations as far south as Cape Colony. In the cold season it is found from Sweden eastwards across Asia to China and Japan, and, according to Howard Saunders, it also moves south through the Malay Archipelago to Australia and the Gilbert Islands in the Pacific; while in America it is found from Alaska to Texas, wintering as far south as Panama.

In England the Shoveler is chiefly known as a spring and winter visitor; in Scotland as a summer visitor and breeding species, and in Ireland as a resident, a migrant, and a winter visitor.

Here, in England, it is principally known in the eastern and northern counties, where it most commonly arrives in March and April. It nests regularly in Norfolk and Lincolnshire, and more sparingly in Suffolk, Bucks, Yorkshire, Durham, and Northumberland, whilst in Nottinghamshire both this species and the Tufted duck are greatly on the increase. Fifty years ago, except at Loch Spynie, Shovelers were practically unknown in Scotland as a breeding species, and though annual spring visitors there as well as at Loch Leven, they could not be regarded as habitual residents till the year 1880, when a great increase took place in their numbers. About that time the first pair or two nested on these lakes and, like other species, their progeny have since bred freely in the old haunts, and have now spread through the length


A. Thorburn
1900

Litho. W. Greve, Berlin

SHOVELER.

Spatula clypeata.
Adult female, full breeding plumage, August.
Adult male, eclipse plumage, August 1th.

PLATE XXI.

and breadth of Scotland. Now the Shoveler nests annually in the counties of Kirkcudbright, Roxburgh, Midlothian, Fife, Perth, Kinross, Aberdeen, Elgin, and Inverness. It is rare in Sutherland and Rosshire, but has bred in the former county. In the Outer Hebrides it is rare, but it occurs regularly in autumn in the Island of Tiree and has undoubtedly bred there. In the Orkneys also it is rare, though it occurs regularly in Sanday, and I have seen freshly killed specimens from there, while in Shetland the species seems to be unknown.

In Ireland the Shoveler is most common in the winter months, but it is also a resident, and, as elsewhere in Britain, a steadily increasing species. Fifty years ago Thompson regarded it as so much of a rarity that he relates, as remarkable occurrences, instances of its capture; but to-day it is found in every district, whilst Messrs. Ussher and Warren state that it breeds in half the counties. According to these authors, it is most common in the great central plain of Ireland; but I have seen it several times in Cork, and it frequents the decoy at Longueville in considerable numbers. It is interesting to note that Messrs. Ussher and Warren regard the increase of the Shoveler as beginning in 1889, nine years later than Scotland.

Like the Teal, the Shoveler is essentially a fresh-water and bog-loving species, spending two-thirds of its time in the swamps and marshes, and only occasionally flying to the open water in small flocks of from five to twenty, to rest or paddle about in search of insects. In winter and early spring they are often found in these small parties out on open sheets of fresh water or in the backwaters of rivers, and even on the tide; but only very rarely do they resort to the sea unless forced thither by severe weather,[1] their small feet being ill adapted for making headway in rough water. In quiet boggy pools they love to rest and dream away the day in the marshes, but towards evening or on cold days they become unusually restive, and spend their time swimming quickly about and skimming the surface of the water for floating weed and insects. This swimming and feeding pose is a highly characteristic one of the Shoveler; the head is buried low and held in such a position that everything is gathered and filtered across the tongue through the pectinated bristles of the mouth—those long natural sieves which are among the many wonders of Nature.[1] All this time the head is kept down, and not raised frequently as with the other surface-feeders when they have obtained some small morsel of food. It is only when a large substance, such as a big water-beetle, of which they are particularly fond, is caught that they throw up the head and swallow.

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[1] In Scotland I have only once seen Shovelers on the sea.

Shovelers have also, in common with Garganey, another curious habit which I have noticed, and have never yet quite determined whether it is a part of their courtship or merely a device to create a mud-and-water disturbance for the gathering of food. A male and female Shoveler get close together, one behind the other, and commence swimming rapidly round in a circle, the bill of each through which the water passes being immersed to the forehead and held close to the stern of the duck in front, and thus they spin round and round for a minute or two, creating a muddy vortex. It may be only a trick to move animal life beneath the surface, like the Mallard's surface paddling; but I have only noticed the manœuvre in spring when the birds are paired.

To the observer who sees the Shoveler casually by day he appears to be somewhat of a lethargic nature; but, when he cares to do so, he can move faster on the water than any of the fresh-water ducks. I have watched with pleasure the wonderful sight, calculation, and quickness of a male Shoveler that I once kept in confinement on a small marshy pond at Fort George. About the last week in April a certain water insect, whose name I do not know, would 'rise' from the mud below to the surface of the pool only to be captured by the Shoveler, who, rushing at full speed along the water, snapped up the beetle the moment it came to the surface. How it could see the insect in the act of rising I could never make out, for it was invisible to me standing on the bank above, and I could only just catch a glimpse of it as the

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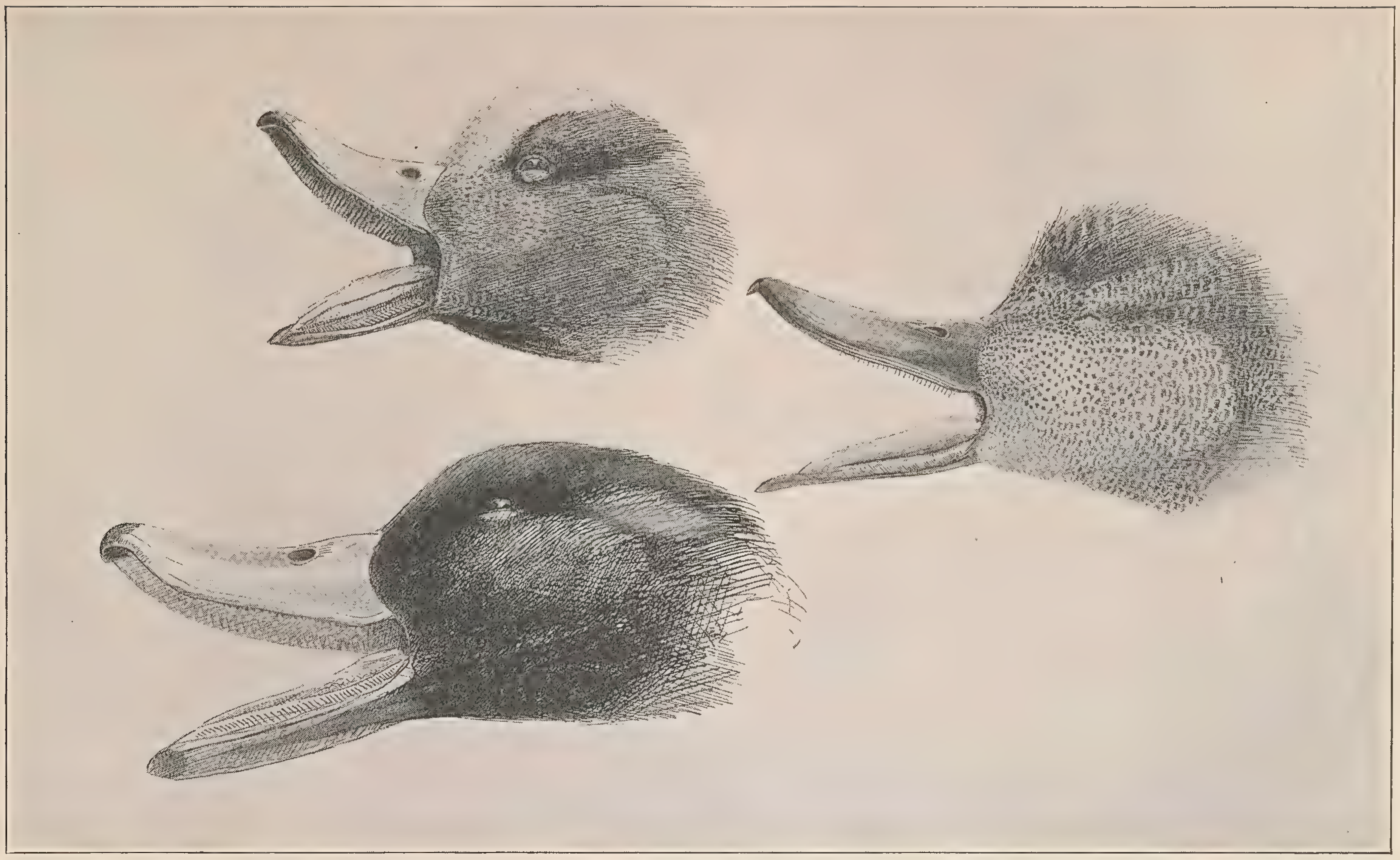
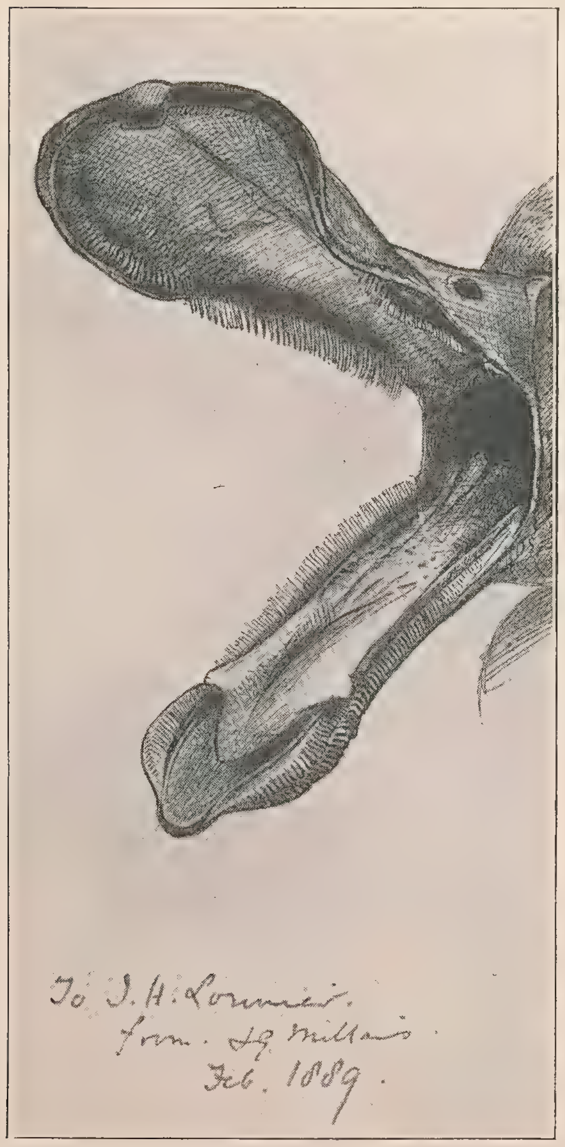
[1] All the surface-feeding ducks are well furnished with this wonderfully delicate mouth-bristle, and it is interesting to note that in proportion to the amount of feeding the duck does on the actual water so these are developed—a perfect exposition of Darwinism. (See illustration.)



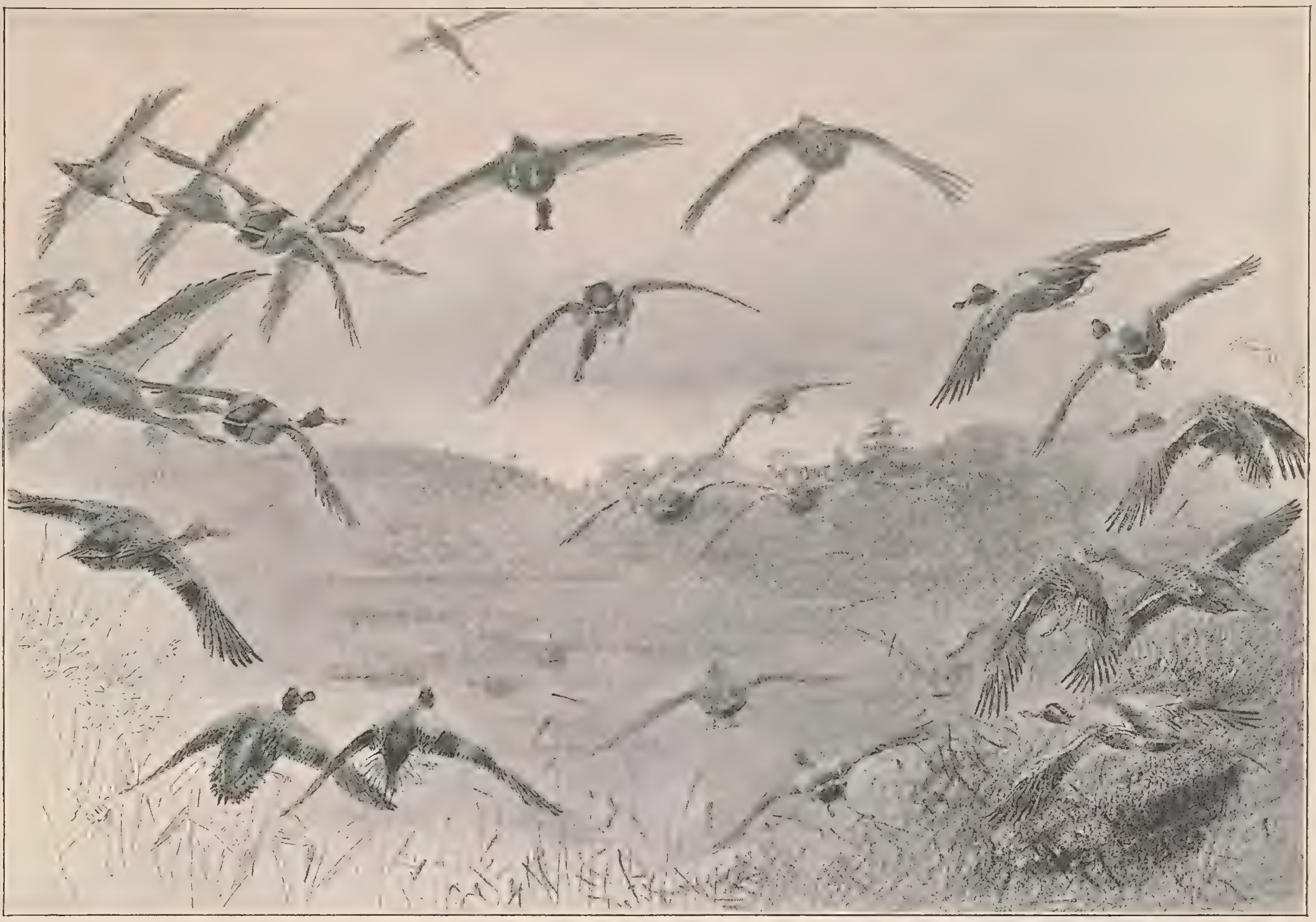
THE MOUTH BRISTLES OF WIGEON, GADWALL, AND MALLARD.



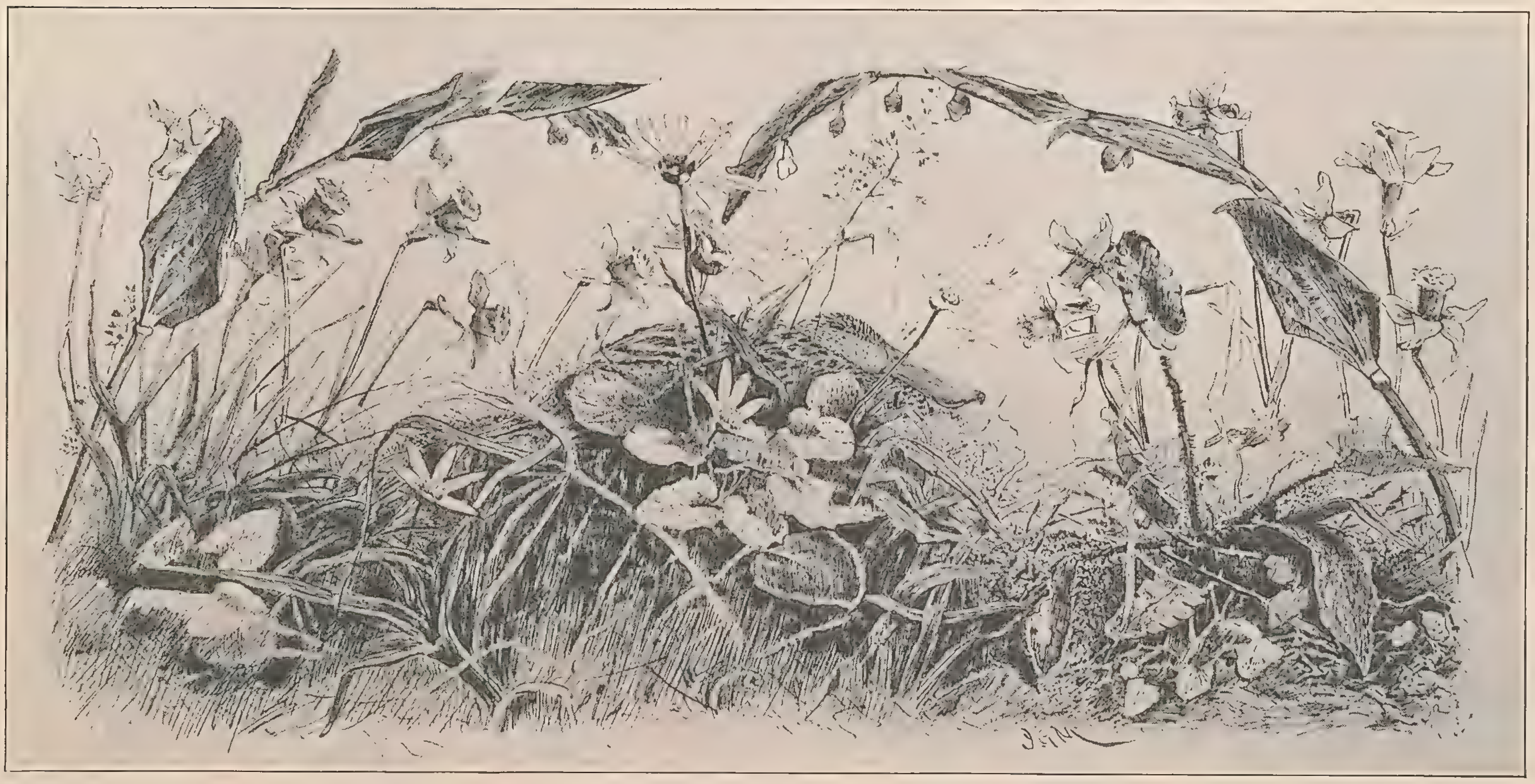
To J. H. Lorimer.
from J. G. Millais
Feb. 1889.

THE MOUTH BRISTLES OF THE SHOVELER.

Here we see a wonderful provision of nature. The comb-like teeth, or *laminæ*, of the surface-feeding ducks are developed in proportion to the extent which the particular species feeds on the surface or otherwise. An omnivorous and somewhat coarse feeder like the Mallard only possesses them in a very rudimentary form, whereas the Shoveler, which is constantly skimming the surface of the water for fine substances, has them greatly developed in both upper and lower mandibles.



SHOVELERS ABOUT TO ALIGHT.



FEMALE SHOVELER ON HER NEST.

Shoveler reached his prey and dexterously caught the beetle as it darted away again. After each capture the duck retired to the side of the pool again and there awaited the next rise—commonly about twenty-five feet away. While thus occupied he seemed to be in a high state of tension; the feathers were closely drawn up and he kept his neck working backwards and forwards, in preparation, as it were, for the next spring, exactly like a cat 'getting up steam' for the final rush on a victim. Sometimes he seemed to get into a frantic state of excitement, darting here and there as if he saw beetles rising in every direction. I noticed also that while devouring his prey the pupils of his eyes were unusually contracted, and the golden circlets seemed to shine more brilliantly than usual. Sometimes I have seen the Shoveler, when unable to catch a beetle or fish in the water, get outside and drive it with skill in the shallows or edge of the pond and seize it as it resisted or tried to turn. On the little pond at Fort George I kept all the surface-feeders, for, as part of an ancient bog marsh, it was perfectly suited to their habits, the birds being in natural surroundings, and consequently in the best of health. Sometimes, on a warm spring night, when there was a good moon, I have lain down in reeds close to the water and watched my ducks for an hour or two, and have noticed that in the evening the Shovelers were always the first to commence feeding and most active throughout the night, exploring every nook and cranny in the enclosure. At this time they became more active than any other surface-feeders, and 'guttered' much in the mud along the side of the pond.

Shovelers will do well on oats, barley, and maize. They catch an occasional fish for themselves, and are particularly fond of duck-weed, grass seeds, and small crustacea.

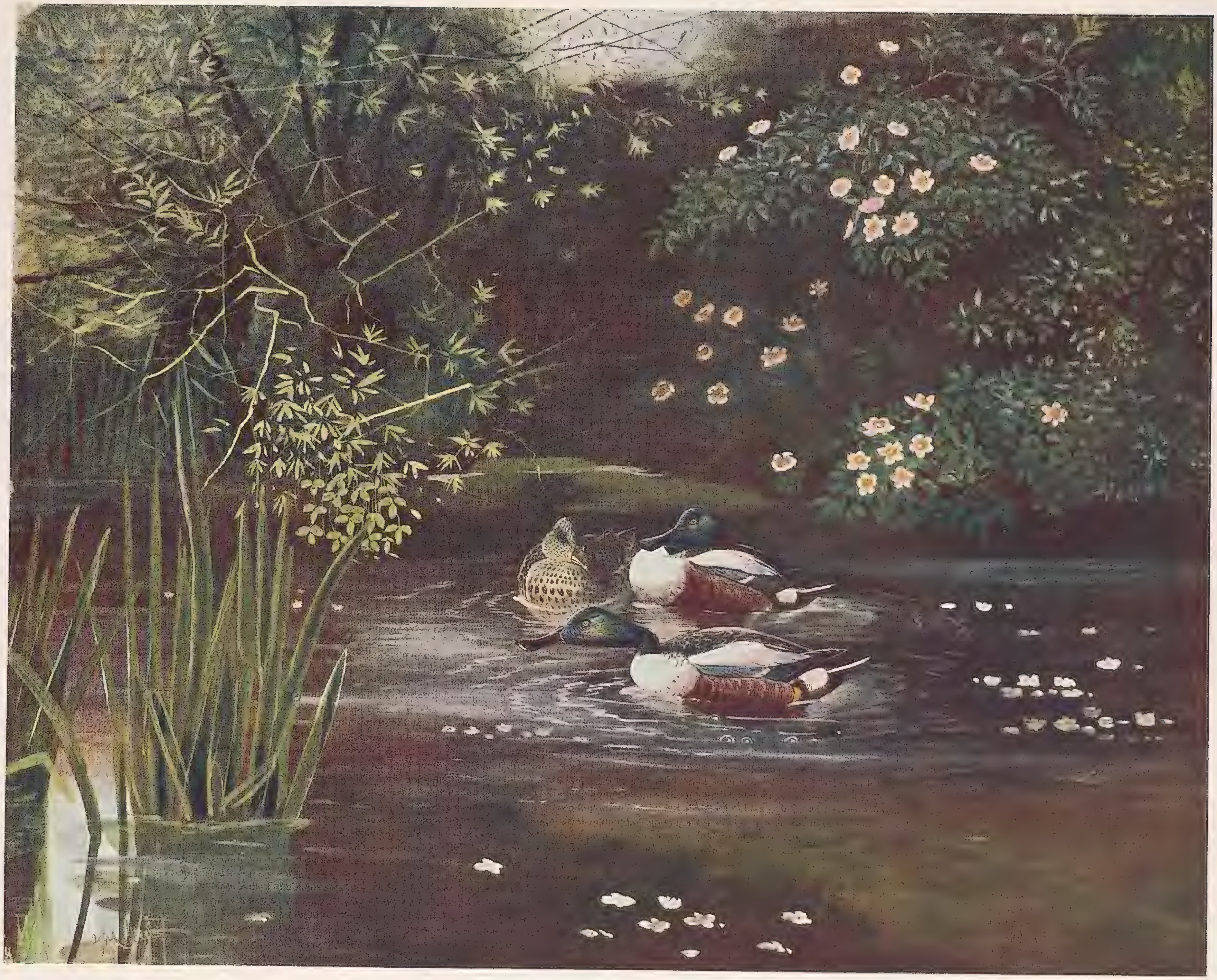
In England and Scotland, when about to nest with us, they arrive in April, generally in one large flock, on some favourite 'broad' or lake. Here they stay for a few days, and at once commence to split up into small parties and to pair. In the spring of 1884 I saw, in one day, at least 300 Shovelers on Benacre Broad, in Suffolk; but a few days later most of them had gone, only a few pairs remaining on this and the neighbouring Easton Broad near Southwold.

On Loch Leven and Loch Spynie in Scotland I have had good opportunities of studying Shovelers. In spring they arrive in one big flock, and in a few days are paired and soon become very tame, so much so that, when fishing, it is almost possible to cast a fly over the birds. On Loch Leven over a hundred pairs of birds are sometimes seen in the spring, but not more than eight or ten pairs stay to nest there, while on Loch Spynie some ten to twenty pairs annually breed. Yet these two favourite resorts undoubtedly form in Scotland the main bases from which most of the other little bogs receive their birds. During the past fifty years Loch Spynie and its immediate surroundings have undergone considerable improvement from the theoretical farmer's point of view, and the present lake and marsh comprise only about a third of their former area. In St. John's time (not the Bible character of that name) a boggy marsh extended from the embankment right up the valley for more than a mile towards Gordonstoun on the Gordon-Cumming property, and here was the great snipe ground, with feeding-places for the innumerable ducks that rested during the day on the waters of the loch. Yet it is doubtful if Shovelers were as plentiful then as they now are; Captain Dunbar Brander considers that, though there were always Shovelers on the loch in summer, the great increase really commenced there, as elsewhere, about the year 1886.

The spring courtship on the part of the male Shoveler is both quiet and undemonstrative, nor does his lady-love betray any particular emotion. He swims slowly up to her, uttering a low guttural croak, like the words 'Konk, konk,' and at the same time elevating his head and neck and jerking his bill upwards. The female then bows in recognition, and both proceed to swim slowly round in circles, one behind the other, with the water running through their bills.

A somewhat unusual circumstance in the matrimonial arrangements of this duck is the prevalence of polyandry where circumstances seem to call for

PLATE XXII.



SHOVELER DRAKES COURTING A FEMALE.

it, and the amiability with which it is accepted by the united drakes. As a rule, where the sexes are equal in a breeding haunt the male and female pair and keep together in the usual way; but where there is a preponderance of males it is quite common to see a female with two males constantly in attendance, and these two husbands will remain with her, apparently in complete amity, until she has commenced to sit. The custom is, of course, quite common in the case of Mallard, but with them there is a certain amount of jealousy on the part of the males, either of whom will drive off and, if possible, keep away altogether, his marital partner. Somewhat remarkable, too, is the fact that after two adult Shovelers have paired, the additional male is generally a bird of the previous year whose plumage is only partially complete. Possibly this may be due to the misfortune of the young Lothario, who, finding that most of the young females of the previous year have gone off by themselves and will not pair, must content himself with such favour as he may find with an older and already mated bird. Certainly, on Loch Spynie, in the month of May, I have seen quite as many trios as pairs of Shovelers, and in nearly every case the third bird was in immature plumage.

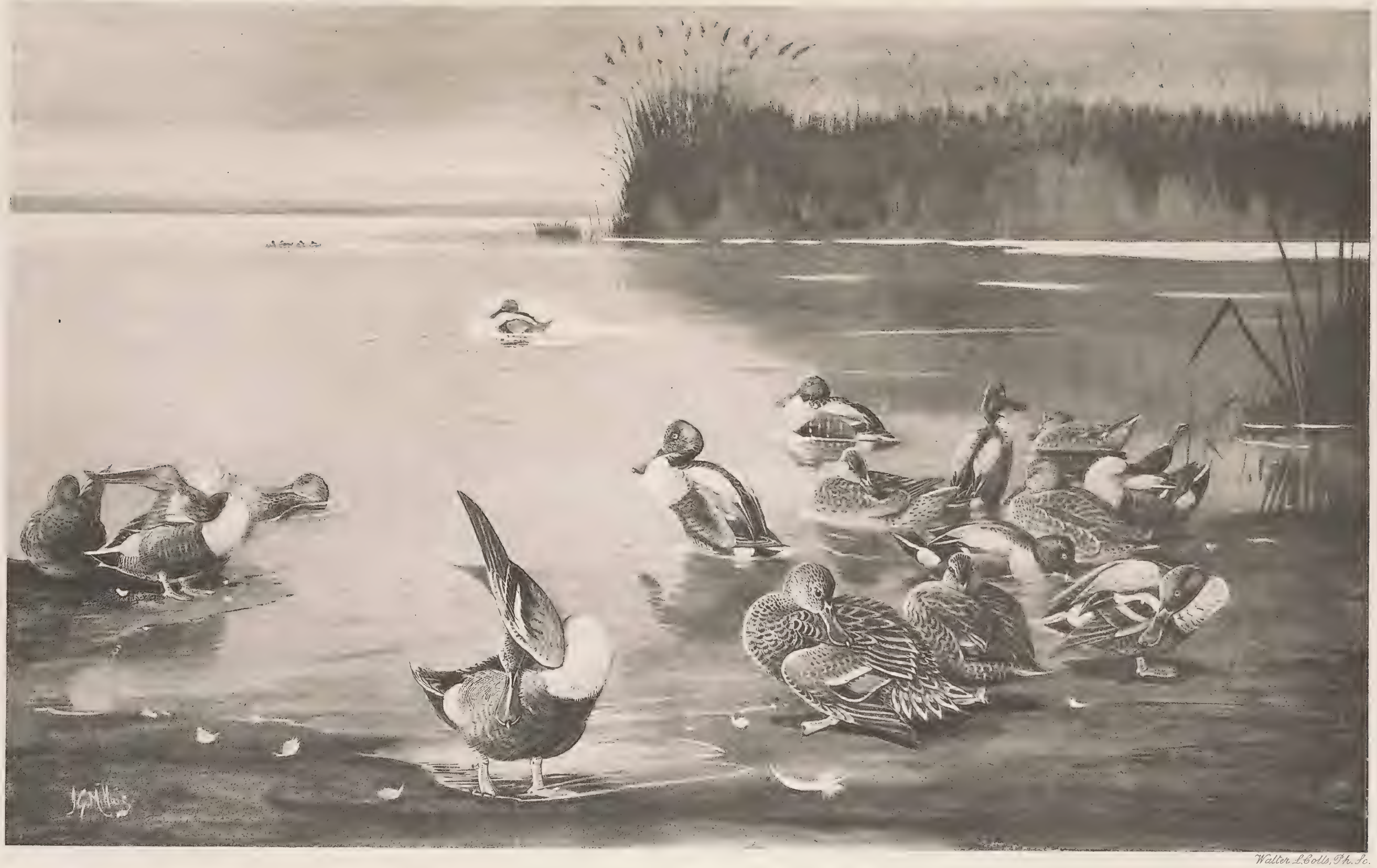
At this season Shovelers spend more time in the air than any other duck. They may be seen on the wing at all hours, beating up and down over the marsh, the two males sometimes indulging in a long aerial love-chase, and displaying all their skill in turning and diving through space. The female Shoveler makes a deep nest of fine grass, and will place it in grassy open land near the water, but not in rank vegetation. As a rule it is very well hidden, and, the parent bird sitting close, it is difficult to find. She usually lays from eight to fifteen eggs of a greenish buff hue. While in down the young birds show but little indication of the future broad bill, but that part of the head is long and narrow, and certainly more palmated at the end than in the young of Mallard or Gadwall, which they closely resemble. With the influx of feathers, however, the bill commences to splay outwards at the sides near the point, but the full size is not gained till the bird is four months old.

I have seen on occasion the male Shoveler, as also male Teal and Mallard, exhibit a certain amount of anxiety for their females and young, and I think the male Shoveler has more regard for the welfare of his family than any of the surface-feeders. If danger threatens he will come flying round uttering a curious note—something between a quack and a croak—significant of his solicitude for their safety.

After the nesting season in Scotland the male Shovelers which have regained their powers of flight roam about singly, and leave early in September for winter quarters, though I have seen a young male killed as late as October 12. The females and young birds of the year stay a little later.

In England and Ireland, where the late autumn is commonly milder than in Scotland, the Shovelers are not in such a hurry to be off to the south. They sometimes remain the entire winter, especially in the Emerald Isle. At this season—in the months of August and September—they seem to be a purely bog-loving species, and are as devoted mudlarks as the Teal. By the sportsman they are easily recognised by the loud rattling of wings which they make on rising from the marsh; hence their nickname 'rattle-wings.' In another place (Loch Spynie) they are always known as 'Britannias'—owing, no doubt, to the beautiful colours of the male in spring.

The Shoveler is an exceedingly active and powerful flyer. On rising he can, if he likes, mount in the air almost perpendicularly, after the manner of the Teal, when, having attained sufficient elevation, his flight resembles that of the Wigeon and Gadwall. Like the Teal, too, he is fond of taking sudden 'headers' towards the earth or water. In spring it is interesting to watch a couple of males chasing a duck, and to notice the activity displayed by the female in her strenuous efforts to avoid the pursuing swains. Shovelers are not nearly so easily alarmed as other ducks at the sound of a gun; they have a habit in common with Teal of soon returning to the same spot from which they have been disturbed.

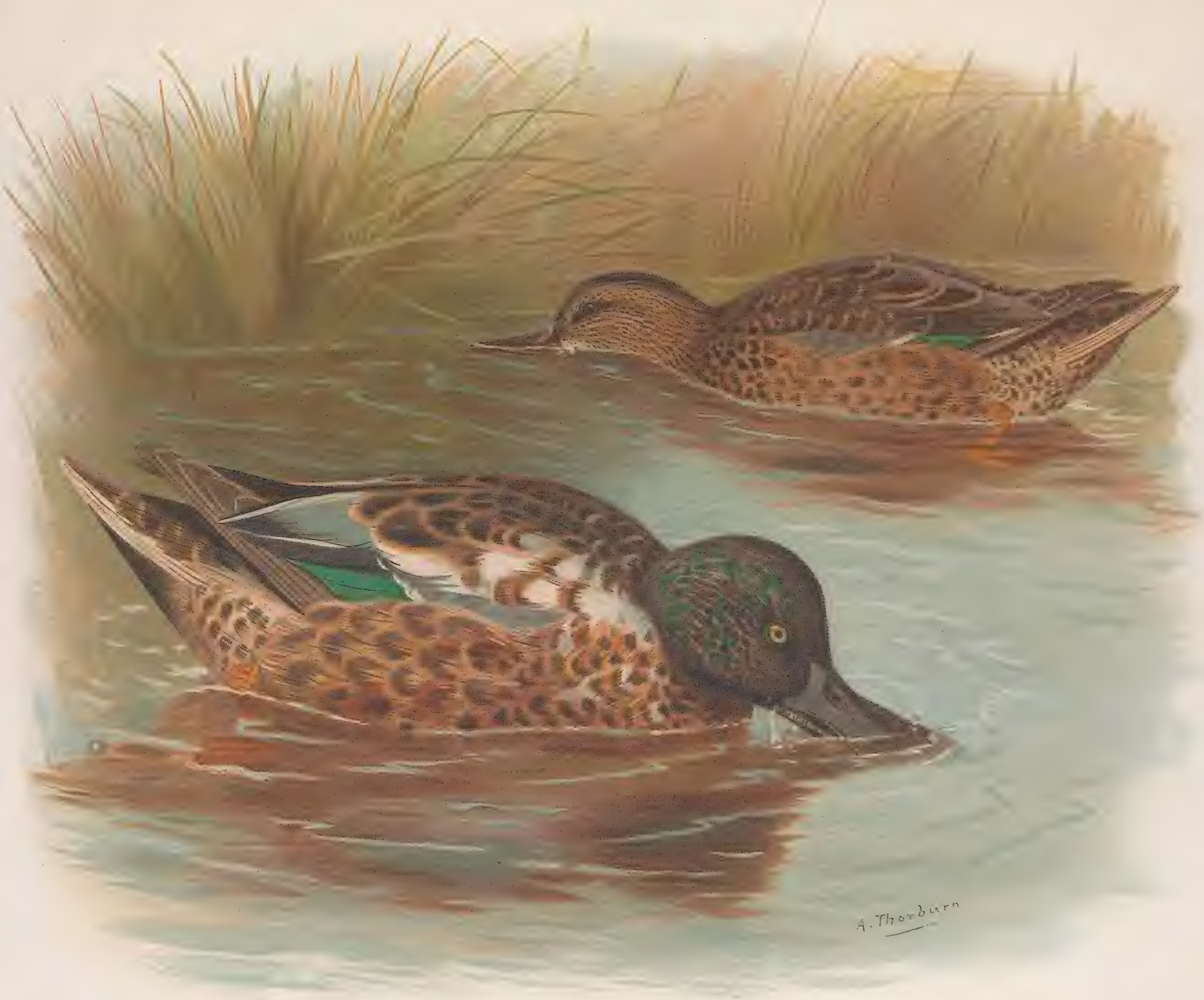


Walter L. Colls, Ph. Sc.

Shovelers preening.

A brace of them were once nearly the cause of serious disaster to one of my friends, as will be seen from the following narrative—useful, perhaps, to some of my readers as showing how bog-shooting may not always be a safe and pleasurable amusement.

In 1889 Mr. (now Captain) Murray and myself set out early one October morning from the barracks at Maryhill, Glasgow, to discover the whereabouts of a certain mire, known as the Apostle Marsh, which was supposed to be within a few minutes' walk of the barracks, and on the outskirts of the town. We had visions of displaying five or six couple of snipe before the eyes of other envious subalterns as they came yawning down to breakfast; and, being called by the guard at 4 A.M., we set off along the canal, occasionally holding our noses to keep out the poisonous effluvia which arises from all waters connected with that otherwise attractive city. The marsh did not look promising; it was entirely surrounded by reeking and roaring furnaces, now, even at this early hour, in full blast. One could hardly believe that any of those free, peace-loving birds of the air could find a refuge in such a pestilential and noisy spot, but there they were. We had just walked round the marsh, having seen nothing in the shape of bird-life, when along the edge of a small open sheet of water in the centre of the quagmire I caught sight of a little wave made by some water-fowl. Now, a water-hen and a duck leave different sorts of 'streak' in the water behind them as they swim, and I felt sure that this was no water-hen; so, retiring behind a bit of hedge that gave cover, I fired my gun off, well knowing that if duck were there they would rise, and seeing no one about would soon pitch again. This was exactly what happened. On pressing the trigger up rose a pair of Shovelers from the middle of the marsh, far out of shot, and after swinging round once they alighted again in a boggy spot that I thought would at any rate be well within gunshot. Well, to make the story short, we at once attacked, wading into the stinking slime, and when it had reached our knees, up rose the two birds within twenty-five yards, and each fell dead at once to the simultaneous discharge of our guns. We laughed now; for though we were very, very dirty, we had something to show for our early rising. The next thing was to retrieve our game, as we had no dog; and this seemed easy enough. A little deeper—perhaps up to the waist—and there they were. Captain Murray was about twenty yards to my left, and we ploughed along for some five yards, when, suddenly, I found myself struggling up to my waist in mud, and in another moment held fast under the arms. Though at the moment I could not move, I could just see over the reeds a chance of escape, and, in no fear as to my power to retreat, I called to my companion that I could go no further and pointed out where the duck were, some ten yards to his right front. He seemed to be going on fairly firm ground, and was actually up to the spot where the birds had fallen, when, to my horror, I saw him throw up his arms and disappear from sight. Then followed an awful minute. He still grasped his gun, which I saw waving wildly in the air; and his groans and kicks that I could plainly hear told me that he was really fighting for his life. Could anyone imagine a more fearful death—to be engulfed in that awful abyss of slime and stench? I must say I felt mad in the impotence of my position, for what I had regarded a moment before as a joke was now a most serious business. But Death often comes and looks at us with his cruel eyes and then, baulked of his prey, passes on to claim some other victim elsewhere. That morning Captain Murray fought and wrestled with him as I hope he will never have occasion to do again. But the man won; his strength and pluck saved him when each was strained to its uttermost limit. For fully a minute and a half he kicked and pushed to force himself backwards to some shallower holding, and at last exhausted he fell back on to a slightly firmer tuft of floating sedge. This kept his face just above the ooze, and after lying there for a second or two he managed by a great effort to throw himself further backwards and find standing-ground up to his shoulders. Meanwhile I had extricated myself and was up to him, but he walked to the edge without assistance, and after a brief rest made for home. How closely comedy and tragedy tread on the heels of each other in this strange world of ours! At 7 A.M. one of us had narrowly escaped from a most frightful form of death; at 7.30 the sight of the gate



Litho. W. Greve, Berlin

SHOVELER.

Spatula clypeata.
Lower Figure. Adult male July 6th., assuming
the eclipse plumage.
Upper Figure. Immature male, first plumage,
3 months.

PLATE XXIII.

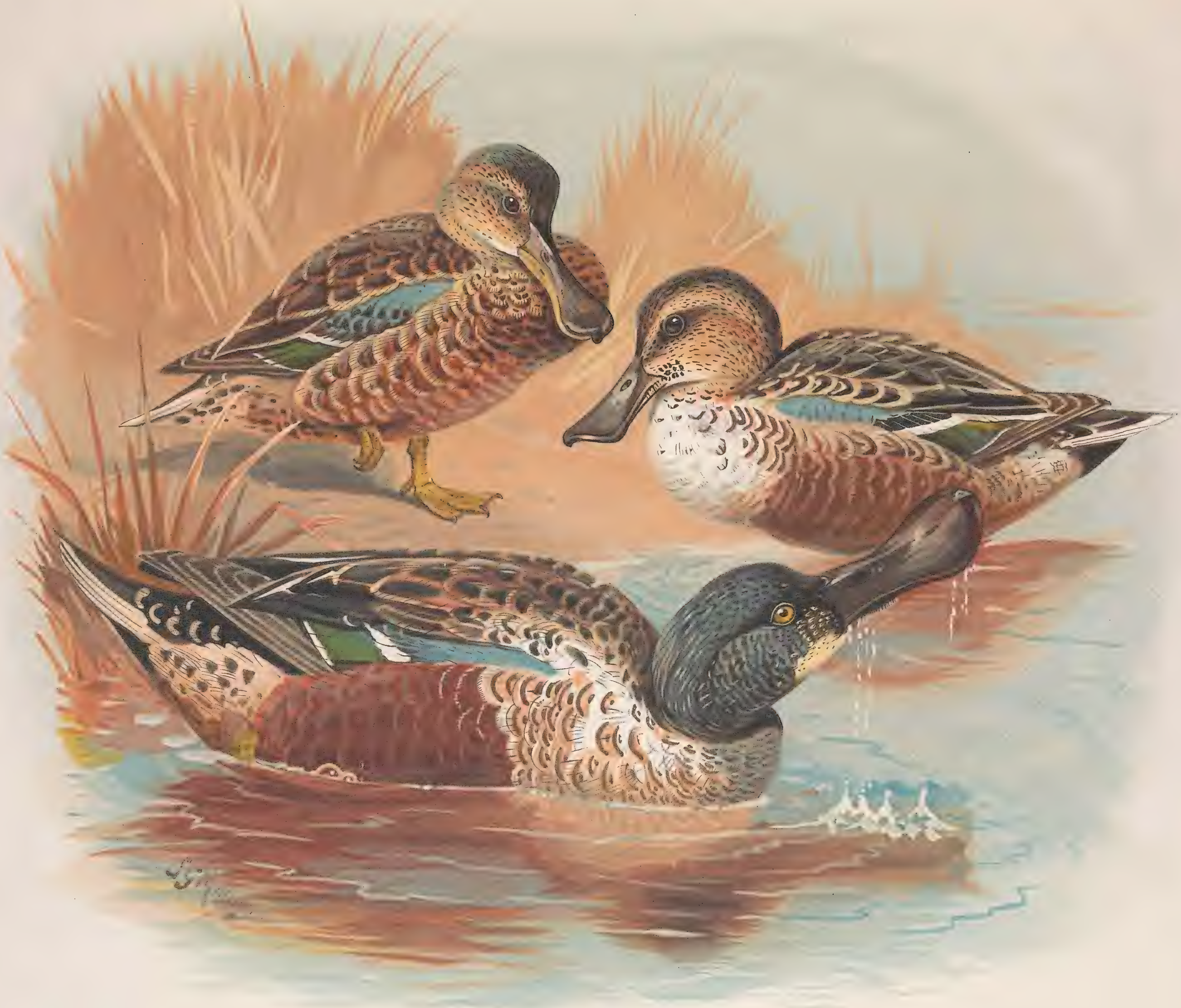


PLATE XXIV.

Litho. W. Greve, Berlin

SHOVELER.

Spatula clypeata.
Immature males.
8 months Feb. 15 months October.
9 months March.

sentry's face as he solemnly presented arms to the two most appalling figures in Europe was too much for us—a picture little short of 'Laughter holding both his sides.' How we laughed, too, for many a day after, over this serio-comic adventure!

THE PLUMAGE OF THE MALE SHOVELER

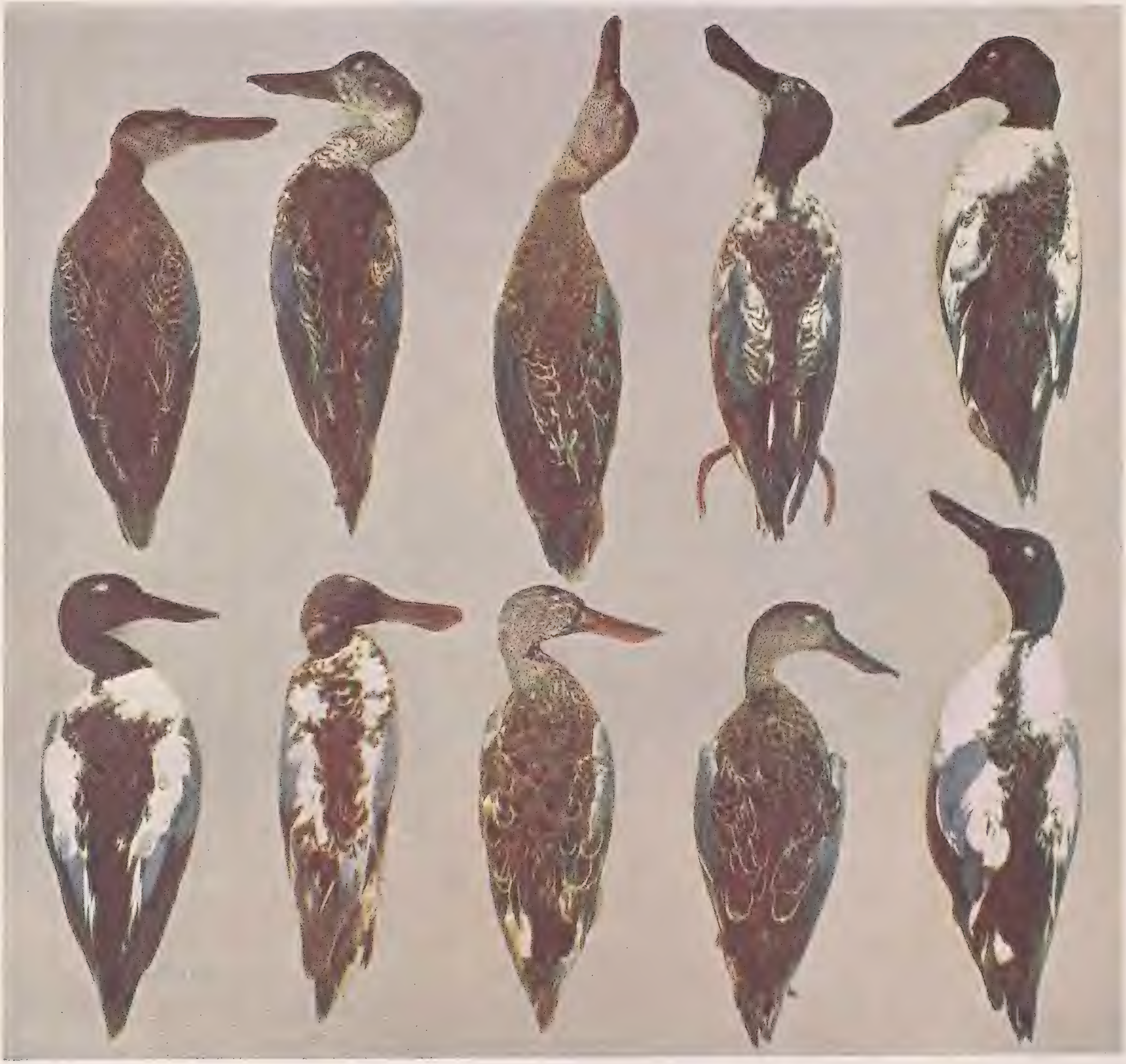
Adult Male. Spring plumage.—Weight, 1 lb. 8 ozs. to 1 lb. 14 ozs.; length 20 inches; wing 9·5 inches. Bill leaden black; eyes bright yellow; legs, toes, and webs orange; head and neck green over black; lower neck and scapulars white; centre of back dark brown with light edges; shoulders pale blue; upper wing coverts white; secondaries dark brown with bright green wing spot; primaries, rump, and tail coverts brown and black; edge of flanks pale straw vermiculated with black; under tail coverts black.

The young male Shoveler in first plumage is somewhat larger than the female, and at this period passes through a stage similar to that of the young Mallard, *i.e.* a rapid body-growth and a considerable colour-change in the back before the actual autumn moult commences. By the middle of September we see the moult beginning, and from this date till the following February there is no surface-feeding duck whose plumage-change progresses so slowly. In its ordinary course there is little difference between September and January, but towards the end of the latter month a big flush of new feathers takes place, either on the whole of the breast down to the vent, or amongst the feathers of the lower neck, where a few pure white feathers appear. In very advanced birds the moult extends over the whole of the lower neck and breast. By the middle of March, numbers of the dark green feathers begin to show themselves on the cheeks, and in April there is an accession of white feathers on the scapulars. In May and June the whole plumage continues to trend towards maturity, and many new feathers which have come in the plumage on the scapulars and sides of the neck are changing colour all the time, from a half compromise with the old first plumage to that of the adult bird. Nevertheless, the whole bird cannot be said to be anything like complete, and still undergoes feather recolouration and moult until the full and complete moult of the eclipse takes place at the beginning of July.

The young drake then moults the wings for the first time in August, and, passing through the usual autumnal colour-change and moult, arrives at a plumage dull and incomplete, yet resembling that of the adult male. Thus we see that in gaining adult dress, this bird takes the same time as the Wigeon, namely, about seventeen months. His plumage, however, so far as my experience goes, is never absolutely perfect until the third season. In that year his full breeding dress seems to attain perfection earlier than at any previous season. Amongst those that I have kept in confinement from immaturity the bill seemed blacker, and all the colours of the plumage more brilliant, when they reached this age. Male Shovelers of twenty-one months old generally have a number of arrow-headed brown bars on the sides of the white breast shield and upper scapulars. The presence of these broad-arrow marks on the white chest must, however, not be taken as indisputable evidence of immaturity, for many perfectly adult males retain year after year one or two of these markings, whilst others have a wholly white shield. It will nevertheless be found that these markings, together with a sandy-edged breast, are constant signs of difference between the young and the old males; for in the first spring the immatures of all the surface-feeders, except the Mallard, whose appearance is largely due to condition and feeding, always lack the colour, size, and finish of the perfectly adult drake.

When changing into the eclipse, I have found the adult males vary considerably in their degree of colour-change immediately preceding the July moult. In some instances the actual change of plumage is very rapid, and the new dress presents but little colour-change as regards the spring plumage feathers, while in others, splendid colour-changes take place—noticeably amongst the chestnut-brown feathers of the breast down to the vent—many becoming well marked with dark loops and bars in sympathy with the oncoming plumage. On the head, too, especially amongst the long feathers at the back and on the cheeks, the colour-sympathy is remarkable. The white

PLATE XXV.

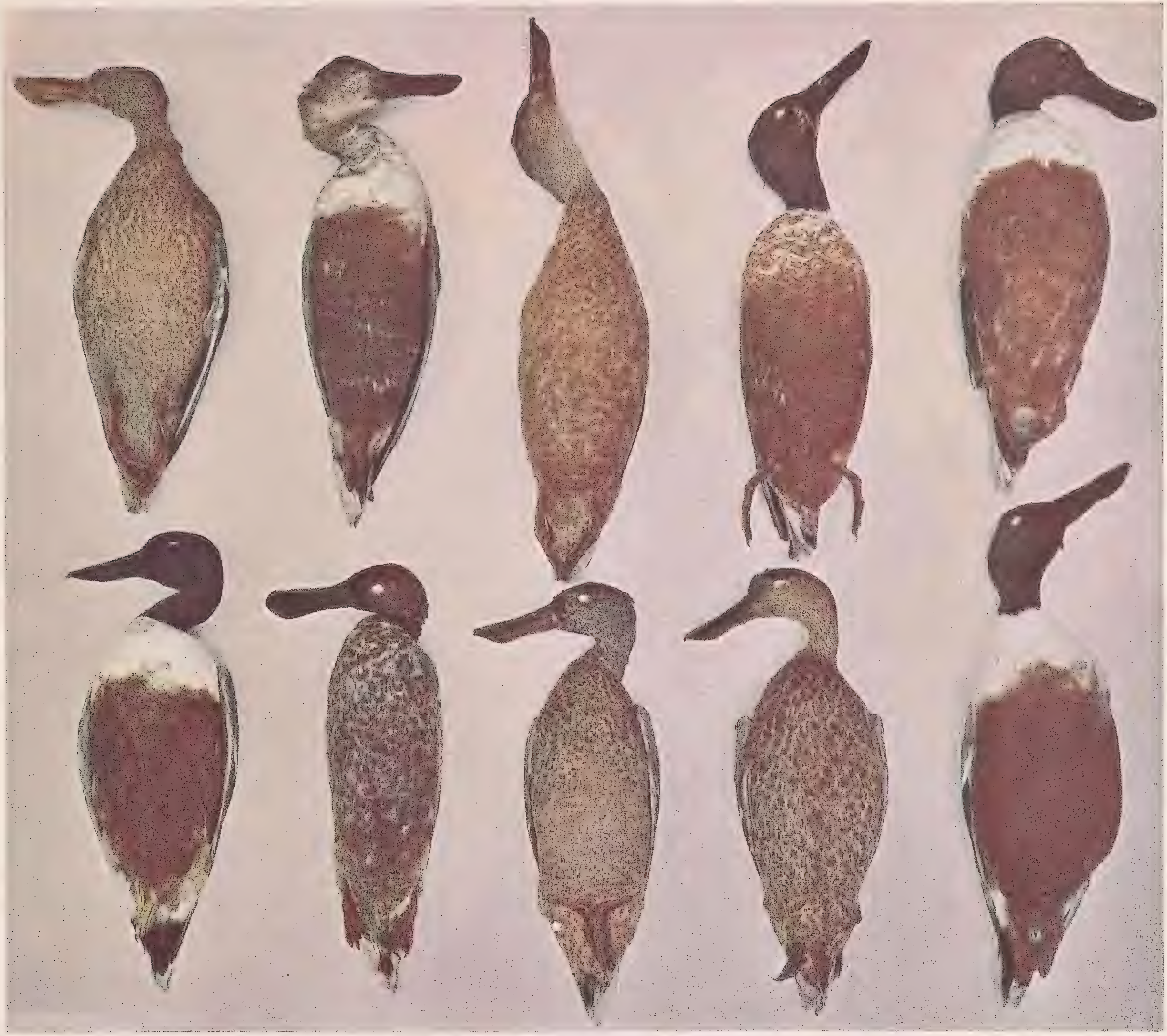


SHOVELER. Males.

The same birds as on opposite page.

1. Young Male in first plumage, August 6th.
2. Young Male now coming out of eclipse dress and assuming full winter plumage, age 15 months.
3 Young Male changing from first plumage to winter dress. February, age 9 months.
4. Young Male changing from eclipse dress to full winter plumage. February, age 21 months.
5. Young Male in adult plumage, yet not quite complete in colour. April, age 23 months.
6. Adult Male, July 1st, about to change to eclipse.
7. Adult Male in full moult to eclipse, July 6th.
8. Adult Male just changed to eclipse, now unable to fly, a few spring feathers still remaining in the plumage.
9. Adult Male, full eclipse September 1st.
10. Adult Male in full winter dress.

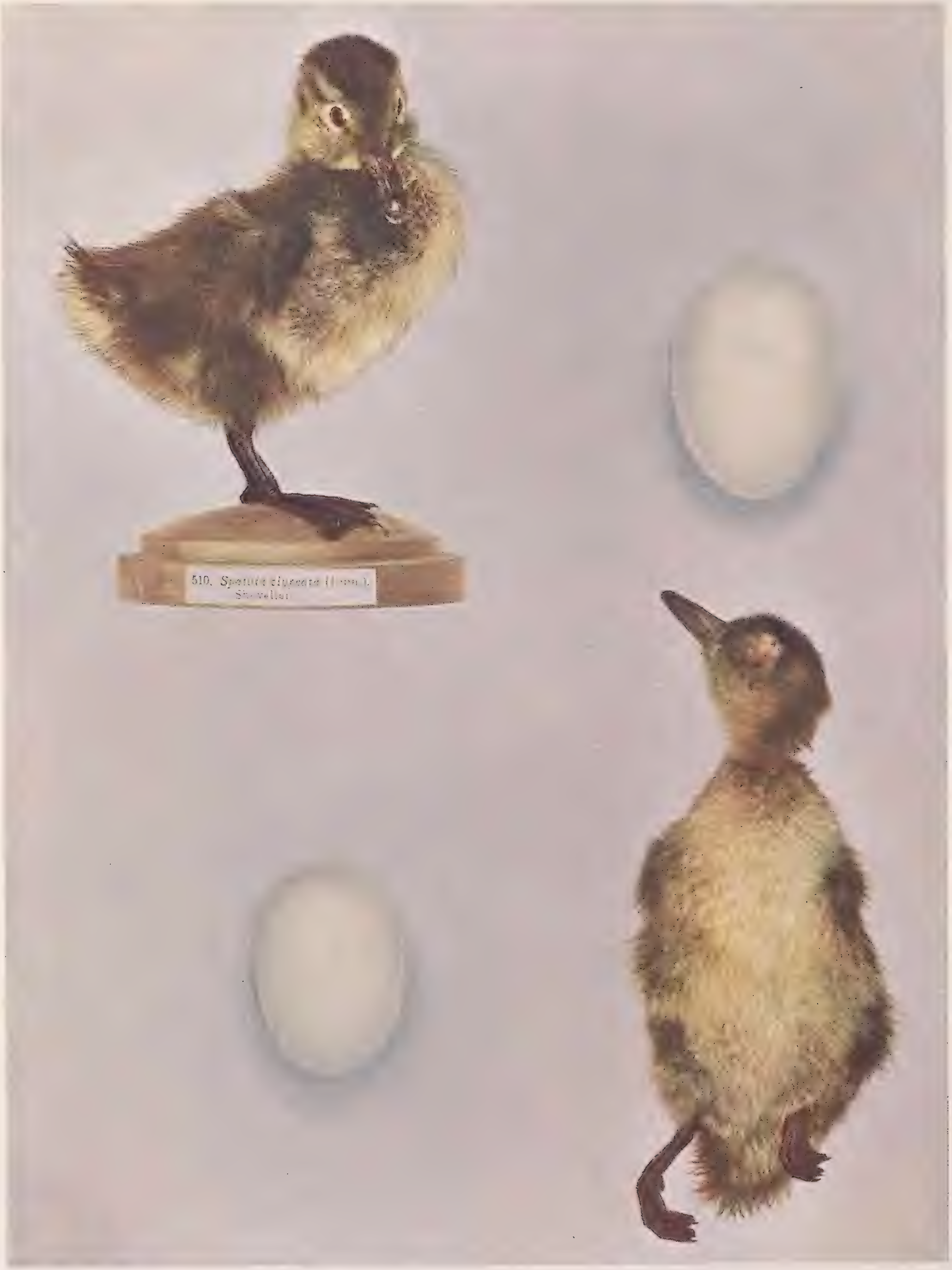
PLATE XXVI.



SHOVELER. Males.

1. Young male in first plumage. August 6th. Age 3 months.
2. Young male now coming out of eclipse dress and assuming full winter plumage. Age 15 months. October 10th.
3. Young male changing from first plumage to winter dress. February. Age 9 months.
4. Young male changing from eclipse dress of previous year to full winter plumage. February. Age 21 months.
5. Young male in adult plumage yet not quite complete in colour. April. Age 23 months. Note the ribbed breast feathers with sandy edges. The whole bird is not nearly so brilliant as the old drake below.
6. Adult male. July 1st. About to change to eclipse.
7. Adult male in full change to eclipse. July 6th.
8. Adult male just changed to eclipse, now unable to fly. Bill a different colour, and breast spots not yet worked to the surface. July 15th.
9. Adult male. Full eclipse. September 1st.
10. Adult male. Full winter plumage.

PLATE XXVII.


510. Spatula clypeata (Linn.).
Shoveller

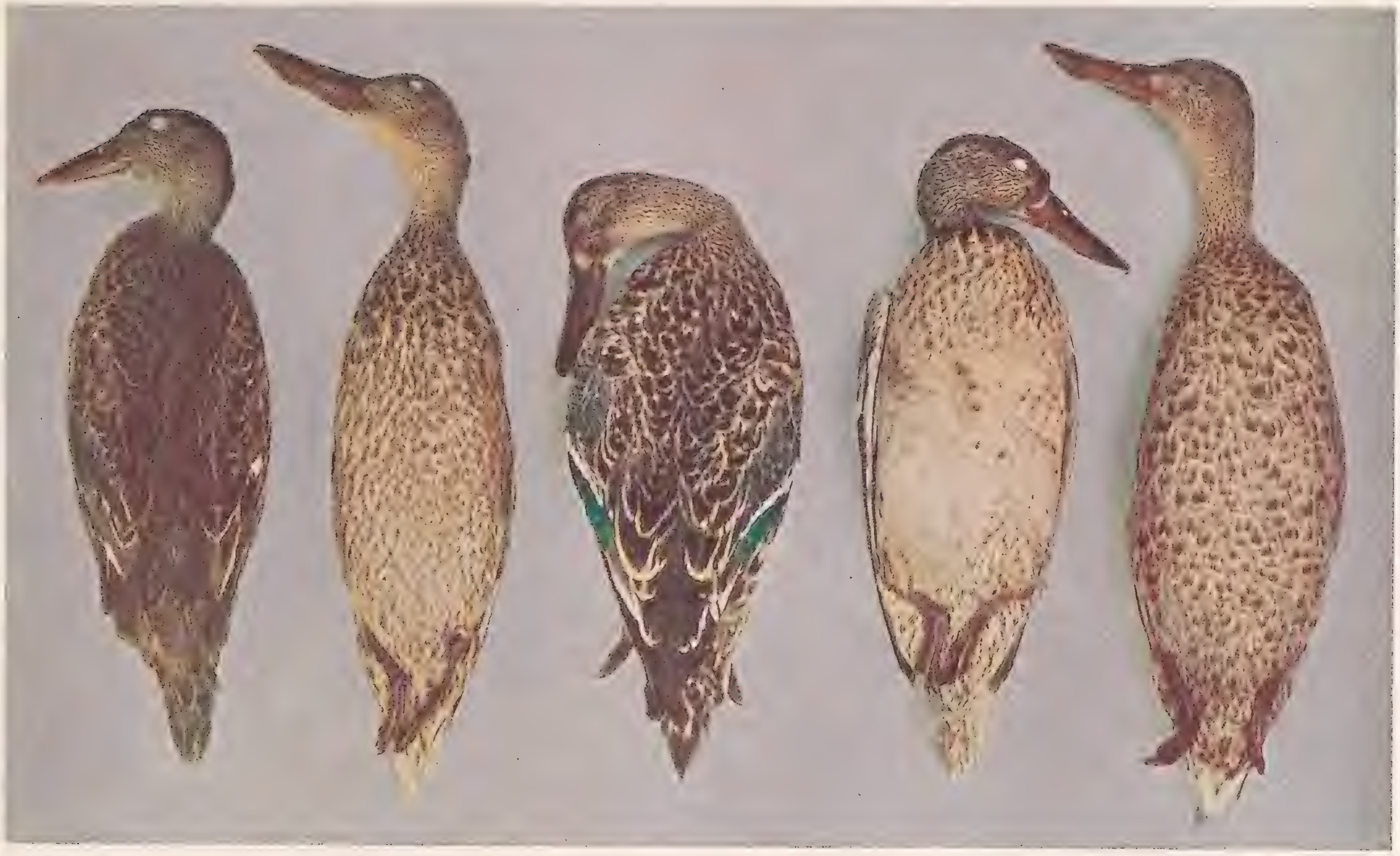
SHOVELER.
Young in down. Age 1 day. Size of life.

EGG OF THE GREEN-WINGED TEAL.
Size 1·8 by 1·25 inches.

EGG OF THE SHOVELER.
Size 2 by 1·4 inches.

THE AMERICAN GREEN-WINGED TEAL.
Young in down. Age 1 day. Size of life.

PLATE XXVIII.



SHOVELER. Female Types.

1 Immature female in first plumage. Back. August.

2. Immature female in first plumage. Breast. September.

3. Adult female. Back. Full winter dress. January.

4. Adult female. Breast. Full winter dress.

5. Adult female. Full breeding dress. Breast. July.

feathers of the lower neck and chest always fall out direct, without undergoing any colour-change.[1] The autumn change of the adult male into winter dress is similar to that of other surface-feeding ducks, but the process, as in the case of the Garganey, is often protracted, and the bird not in complete plumage until December.

THE PLUMAGE OF THE FEMALE SHOVELER

When first capable of flight, as at the end of July, the young female Shoveler somewhat resembles the young Mallard female at a similar age, but the bird is easily distinguished by its inferior size and the broadness of the bill, which is now rapidly growing. At this age—say two months—the bill has not nearly reached its full growth, but with the power of flight the whole bird advances rapidly both in form and plumage. In about a fortnight there is a distinct colour-change as well as moult taking place in and amongst the scapular feathers, and we see the first signs of the winter plumage appearing all over the back of the bird. Then, as with all the surface-feeding females, the usual complete moult extends over the whole bird as the autumn and winter advance, till, by January, a complete new dress has been acquired *except on the wings.* In spring, when the Shovelers come to the breeding grounds, these young females, if not in the main flock, soon separate themselves and go off to lead a life of single blessedness,[2] and are easily distinguished from the old birds by their dark shoulders and wings. These portions of the plumage are moulted in July, primaries falling alternately, and the bird being capable of flight during the whole period of the moult. Thus the female Shoveler, like the male, does not acquire her full dress until October, *i.e.* at the age of seventeen months.

Adult female Shovelers in winter dress seem to present a very constant type, there being practically no well-defined light and dark forms, as in the case of the Teal, the Mallard, and the Wigeon. The breast is a uniform sandy yellow-brown in the centre, only the upper part and vent being marked with dark brown spots and flecks; but underneath this—apparently in marked portions of the breast and high up and hidden in the feathers—are also dark brown longitudinal markings which gradually work to the surface in May, so that the adult breeding females in June and July are heavily spotted over the whole of the breast from neck to vent. Their backs and tails are also darker at this season. Breeding female Shovelers, like all the surface-feeders, moult their primaries in July, in readiness to fly with their broods.

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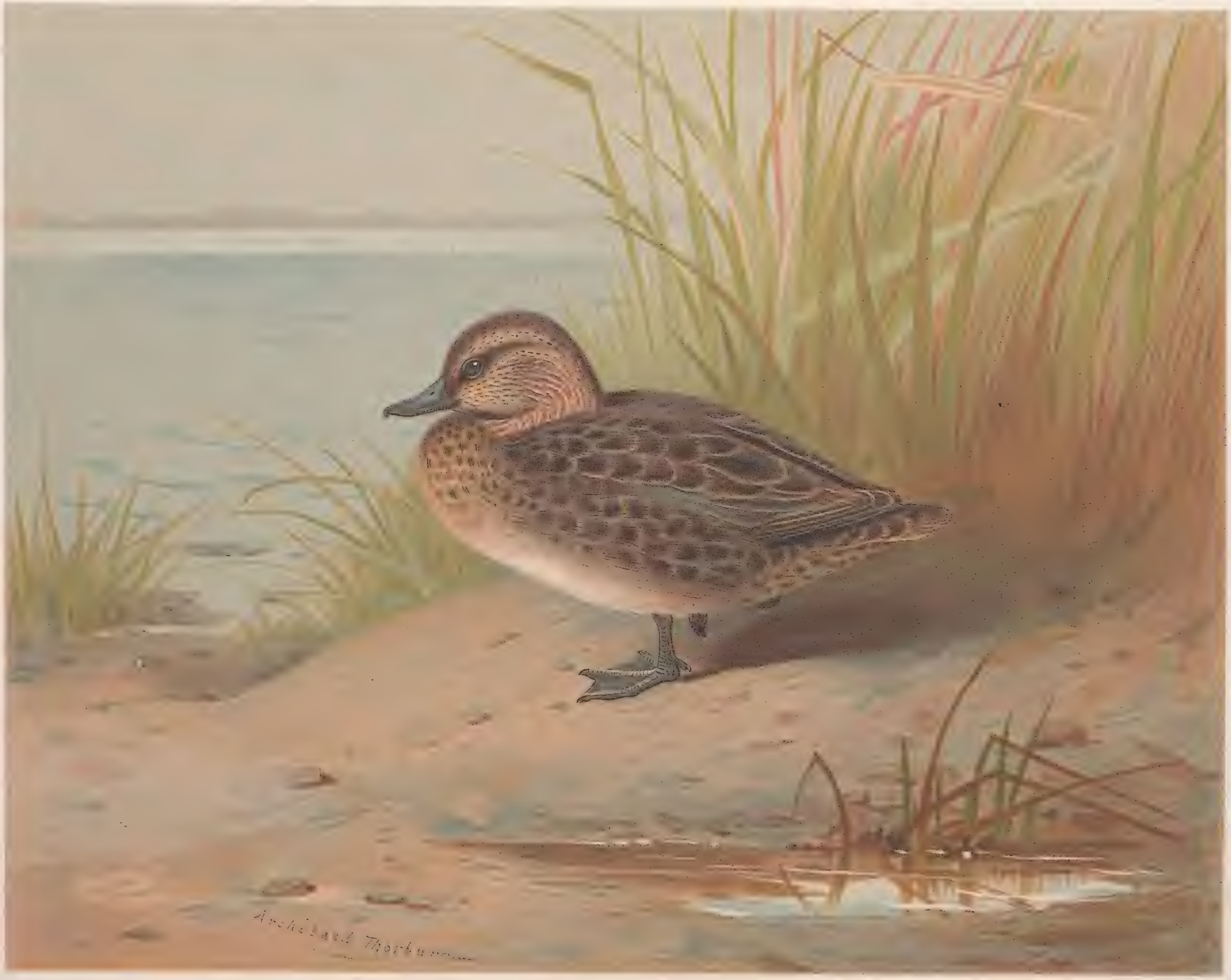
[1] In all water-fowl white feathers are least inclined to sympathetic change, and, except in the case of the Grebes, Terns, and Gulls, it is uncommon.

[2] I do not believe that they breed during their first spring.

In Plate XXI. the figure in the water is the adult female, that lying on the bank is the adult male in eclipse plumage.


Archibald Thorburn

Litho. W. Greve, Berlin.

GARGANEY.

Querquedula circia.
Adult male, eclipse plumage, August.

PLATE XXIX.

THE GARGANEY

Querquedula circia (LINNÆUS)

THE Garganey in Europe may be considered a very local species. It is abundant in East Prussia and Denmark, but only visits north-western Europe, in which we may include the British Islands and Norway, in small numbers. Yet it is common in Sweden up to latitude 60°, and in summer breeds in Finland and Russia as far north as Archangel. In Eastern Russia it again becomes common, and in summer traverses the whole of western Asia as far as Kamtschatka, whilst Mr. Popham found it in Siberia as far north as Yeniseisk, and it probably accompanies the hosts of surface-feeding duck that breed in the deltas of the Yenisei and the Lena. In winter the species moves south to India, where it is very common in the winter, and Mr. Howard Saunders states that it occurs sparsely in Japan, the Philippines, China, and the Malay Archipelago.

The Garganey is generally distributed throughout southern Europe during the summer, but is sometimes numerous in Spain during the winter. Even at this season it is fluctuating in its numbers, some years occurring in plenty and in others being scarce, owing to the birds going further south to winter in Morocco and Algeria, where at times they occur in great numbers. The winter migrations also extend to Egypt, Arabia, and Nubia.

A few small parties of Garganey make their appearance in England at the beginning of March, and notwithstanding the protection that is afforded them they are certainly not on the increase, despite the statements of more than one careful ornithologist. Two broads in the county of Norfolk are the chief resort of this beautiful little duck, and there is little doubt that fewer nests are made there every year. Mr. J. H. Gurney, whose opinion I asked on this question, quite agreed that the numbers of the Garganey and their increase 'had been greatly exaggerated.'[1] The Garganey visits Lincolnshire and Hampshire, and has bred recently in both of these counties. It has also bred in Yorkshire, and used to do so regularly in Northumberland before the drainage of Prestwick Car; but now it is extremely rare in the north and west of England. The Garganey is said to have occurred on Jura in the Inner, and Barra in the Outer, Hebrides, but I have never seen a specimen that has been obtained on the mainland of Scotland, although there are numerous records of its supposed occurrence. Dr. Saxby stated that he shot one in September at Balta Sound, Unst, and that is probably the only genuine example killed in the northern isles.

In Ireland the Garganey is also only a rare visitor in the spring-time, chiefly to the southern counties, but it has also occurred, as in England, on the autumnal migration. Messrs. Ussher and Warren regard the species as a rare wanderer, and give about twenty records of its capture.

In general habits the Garganey closely resembles the Teal and the Shoveler, between which species it forms a very definite link, embracing as it does, both in structure and in habits, many of the peculiarities of both. It loves to gutter in boggy swamps, and to sit and rest by day in still backwaters, and in its absence of activity, retiring disposition, and small numbers consorting together, it more closely resembles the larger bird. In India during the winter the Garganey gathers on the Jeels in immense numbers; but in Europe, possibly from their comparative scarcity, they are not so nearly gregarious, and even in their favourite haunts they are generally only seen in small flocks. Apparently, too, they are less marine than the Teal, which will go to the sea during hard weather rather than migrate south; but they will nevertheless frequent brackish estuaries such as the Rhone delta. At such times their flesh is poor eating, and far inferior to the Teal. I have tried others from the brackish lakes of Algeria, but they were equally rank and unpalatable. But

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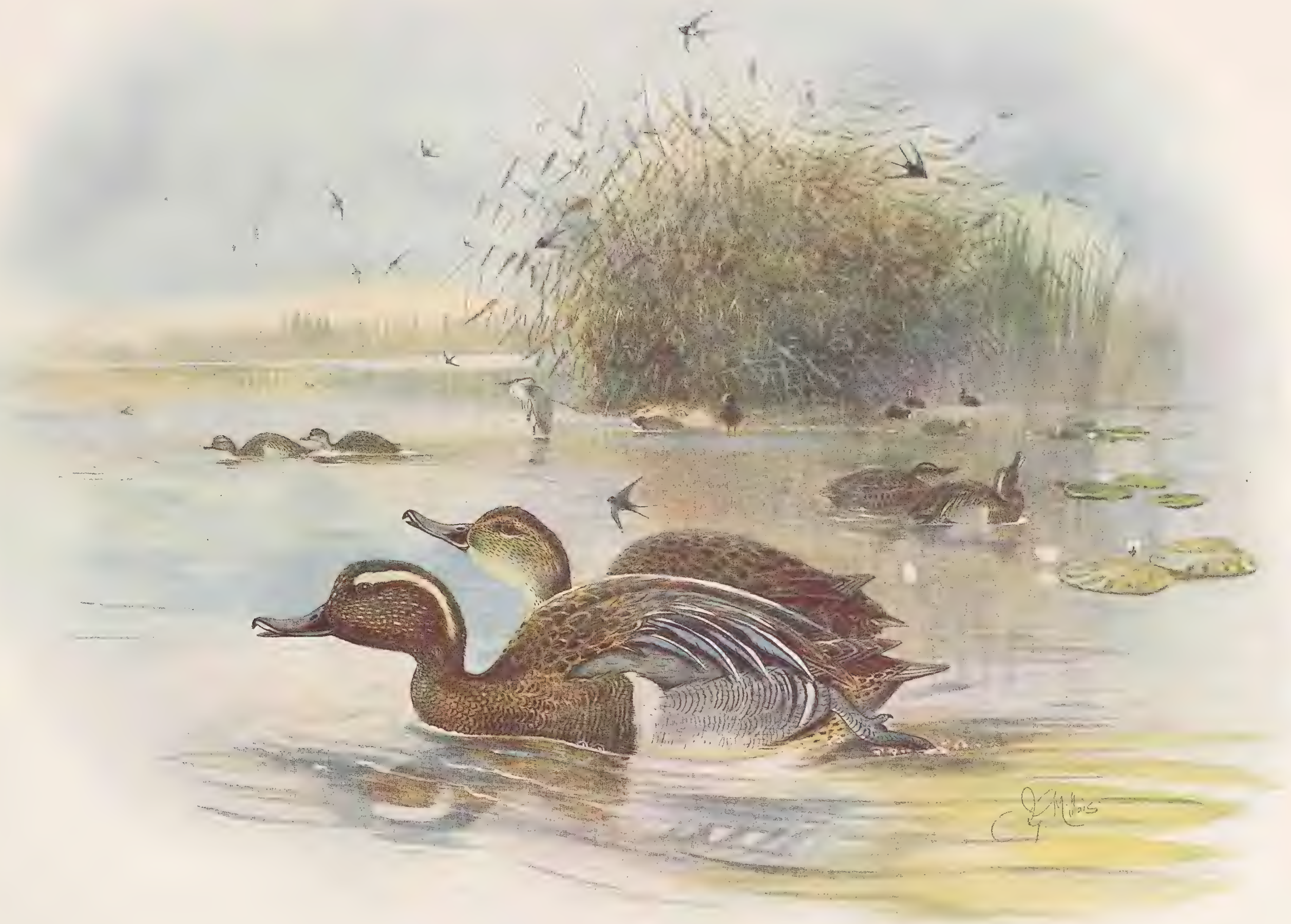
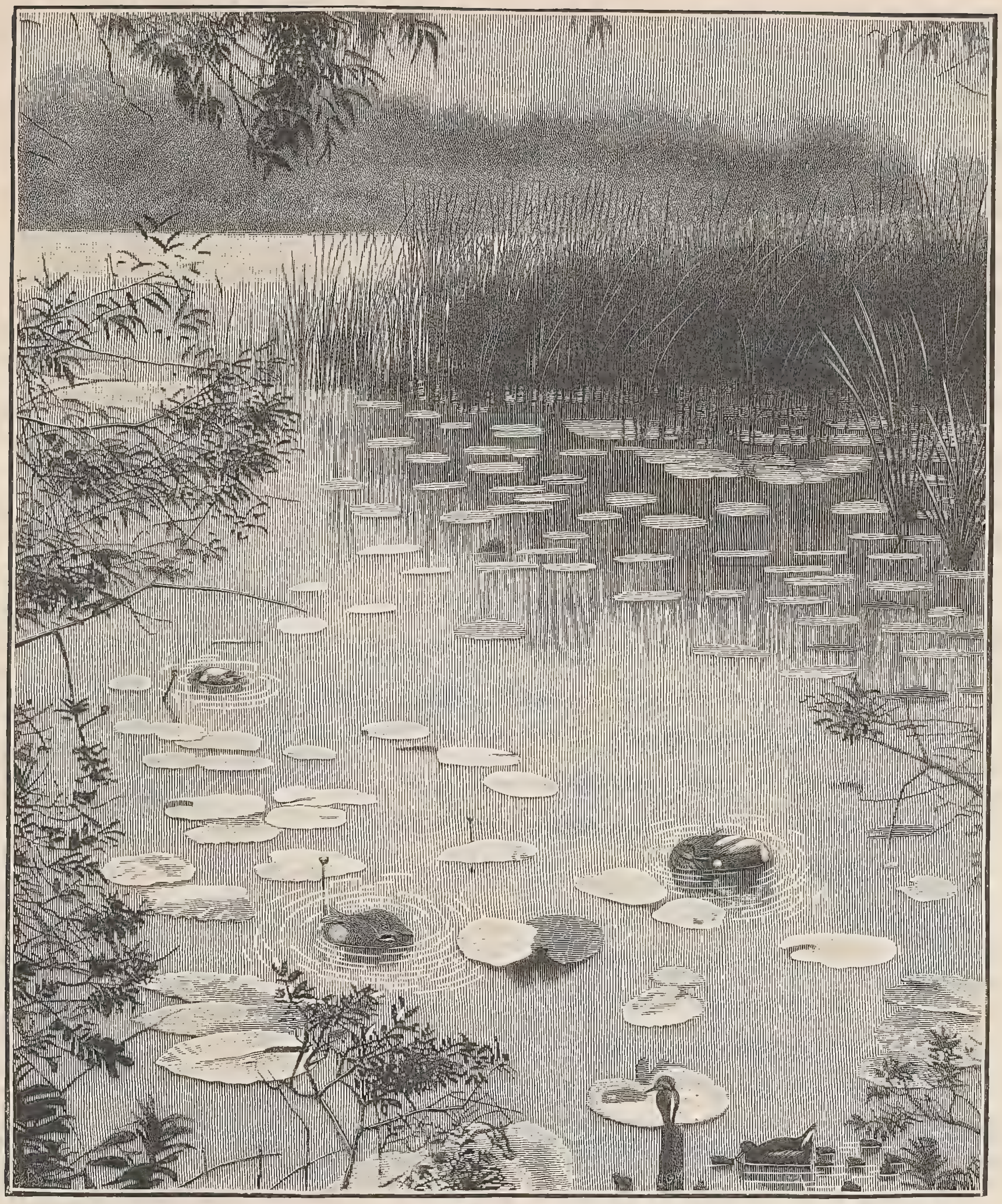
[1] After the most careful inquiries I could not ascertain that there were more than fourteen nests in Norfolk during the year 1900.



GARGANEYS RUSHING TO CATCH WATER BEETLES AS THEY RISE.

PLATE XXX.



GARGANEYS AND SHOVELERS CIRCLING.

the value of duck flesh for the table is entirely dependent on the matter upon which the duck have been feeding, irrespective of species, for that usually best of all table birds, the Wigeon, when living on sea cockles, as many do on the north-east coast of Scotland, may be quite unfit for human food, whilst the rank Eider may be rendered fat and delicate of flavour by keeping it in confinement and feeding it on wheat and barley. The Garganey feeds largely on small fish and aquatic insects, and does not eat much vegetable substance; so the flesh usually has the rank and bitter taste common to all insectivorous and fish-eating birds.

There is little to say of the general habits and movements of the Garganey, which are not similar to the Shoveler. The flight is easy and rapid, and more like that duck than the Teal, for it is not so swift nor so abrupt in its first perpendicular rise as the latter; neither does it turn and swing so much. Like the Shoveler, too, it is fond of beating up and down over the marsh that is to be its summer home, especially on windy mornings, when it may be seen continually on the wing. In general appearance Garganey sit very high on the water, and the males are not difficult to distinguish by means of their pronounced eye-stripe.

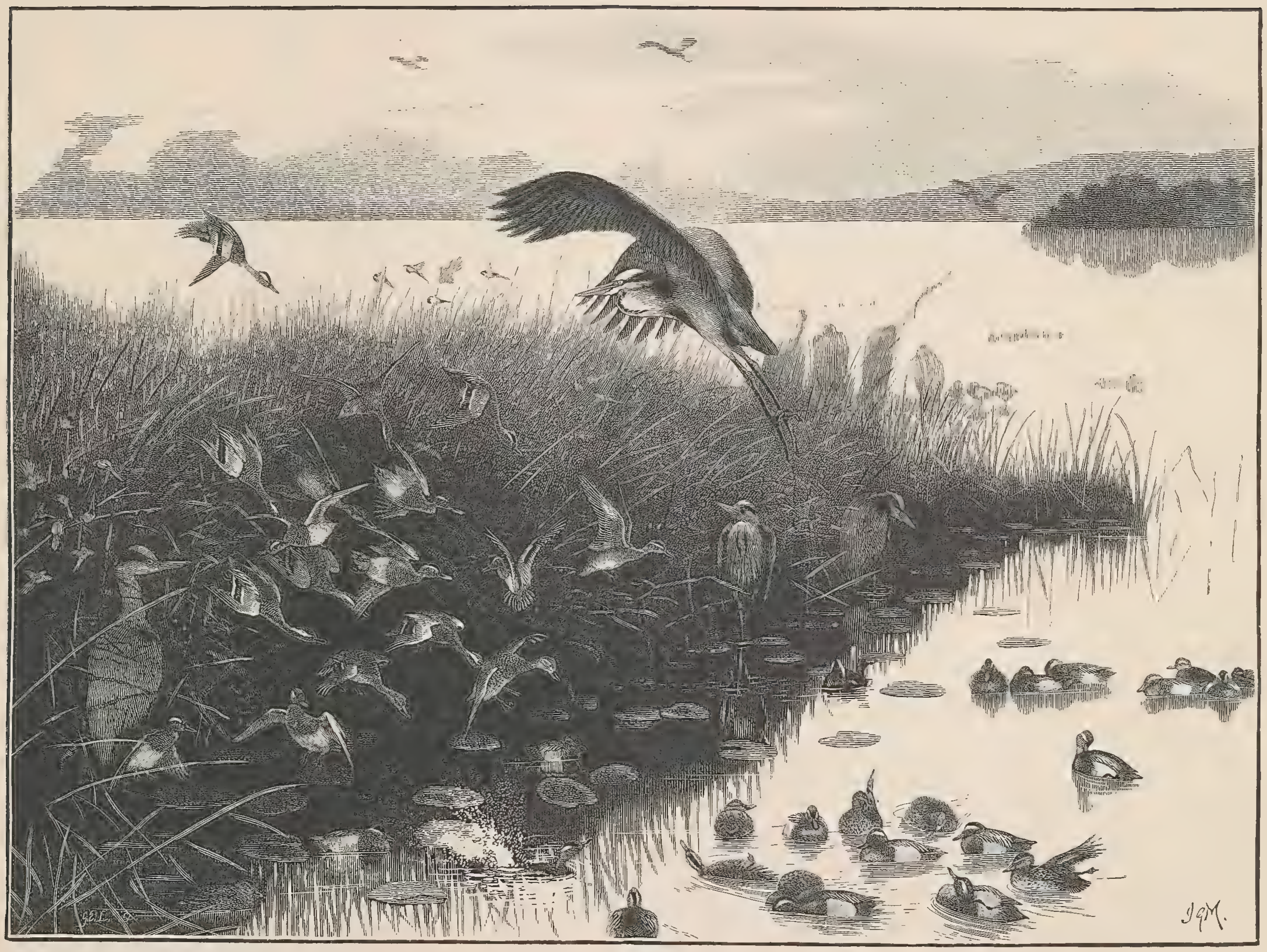
The female, unless paired with the male, is at all times difficult to distinguish from the female Teal, especially as her call resembles the sharp 'quack' of that species; but the adult female Garganey can generally be recognised at a short distance by the yellow-white band of the eye and the yellow-white and unspotted chin.

The Garganey again shows his affinity to the Shoveler in his undemonstrative courtship, which is almost precisely similar to that duck. In the spring-time the male swims closely round the female, spreading his long scapulars and ruffling his head feathers to show his splendid plumage off to best advantage. The two birds also indulge in the peculiar 'spin' round each other, head to stern, and allowing the water to rush through the bills, which are buried to the nose beneath the surface. No doubt this creation of a vortex may be a means of stirring up water insects for food, but I have little doubt that it is also a courting display. At this season of love the cock Garganey frequently utters his peculiar cry. It is a crackling note, and may be likened to the noise of a high-pitched rattle, or that produced by a stick swiftly drawn across thin iron rails. Hence, in the east of England, in addition to the name of 'Summer Teal,' the bird is known as the 'Cricket Teal.'

The site chosen for the nest is similar to that of the Wigeon, either in coarse herbage or open moorland, and sometimes far from the water. The eggs are usually laid in May, and number from seven to thirteen, and are yellower than those of the Teal. There is also a very distinct difference in the young in down, which can be seen by reference to the coloured plate.

The males commence to change into the eclipse about the same time as the Teal, and alter very rapidly; but once in their sombre colours they remain in this dress for a longer period than any other surface-feeding drake—in fact, the full plumage is often delayed until February, the process of colour change and feather influx coming on only gradually until that month, when a heavy flush of feather as well as colour rise takes place. This is interesting, as again showing a close affinity of the species to the Shoveler; for the Teal, to which the Garganey is supposed to be more closely related, gets its full plumage in October, and only takes on a 'bloom,' as it were, and general completion of plumage in the spring.

In confinement the Garganey does well, and will live as long as any of the other ducks on the ordinary food; but I have not heard that anyone has been successful in getting them to rear their young. They are retiring in their habits when kept on ponds, but, as a rule, they are tamer than Teal—a male that I kept for three years would come and almost take food from the hand. Hybrids of the Garganey with other species are extremely rare. There is an interesting cross between this species and the Shoveler in one of the cases devoted to hybrids in the Natural History Museum at South Kensington, and Mr. Walter Rothschild has a cross between a Teal and a Garganey.



A SOUTHERN LAGOON.

The Plumage of the Garganey

Adult Male—Spring.—Weight 12 to 16 ozs.; length 16 inches; wing 7 to 8 inches. Bill black; legs, toes, and webs green lead colour; forehead, crown, and nape, vandyke-brown—a bold white stripe runs on each side of the head from the eyes to the back of the neck; neck red-brown, interspersed with white hair-like lines; back dark brown with lighter edges; long scapulars black, with a centre stripe of white; shoulders blue-grey; the secondaries have a bright green wing patch between white bars; tail and primaries brown; breast red-brown with crescentic bars of black; chin black; belly white; flanks white, vermiculated with black, and terminating above the thigh in a broad white and blue-grey band.

In first plumage it is extremely difficult to tell the young male Garganey from a Teal at a similar age, except that the wing coverts of the former are bluish-grey, and much lighter than the Teal. After two months are past, however, certain indications of the future plumage of each appear on the back and scapulars that render identification of the two species simple, and from this date there can be no confusion. Young male Garganey change as slowly into the adult as some young male Shovelers, and I have seen young males in February that differ little from October birds. In their first spring there is the usual flush of new feathers, and though in rare cases some young males undoubtedly gain the complete dress, the majority only partially assume it, but change from their incomplete garb into the full eclipse in July, only attaining the full nuptial dress in the second spring. Young male Garganeys do not, as a rule, breed at ten months like young Teal drakes, though in very rare instances it is possible they may do so when a complete plumage assumption has taken place.

The female Garganey seems to follow the same course as the female Shoveler.

THE BLUE-WINGED TEAL

Querquedula discors (LINNÆUS)

In its general habits and love of a warmer climate, this Teal in the New World forms the prototype of the Garganey in Europe. In summer it nests locally from Labrador to Florida, from Alaska to California, and from the Saskatchewan to Kansas; but it is the first duck to hurry southward to avoid the cold, and comes to its winter range by way of the mid-Atlantic and western states, east of the Rockies, by the middle of September. During autumn in the great sloughs overgrown with wild rice in Minnesota, Illinois, and Indiana it is very common, and the birds pass on to spend the winter in Virginia, Lower Florida, Mexico, the West Indies, and South America as far south as Patagonia, the western contingent passing over to Lower California.

As a straggler to Europe it is exceedingly rare, as it has only twice been noted in Europe—once in Denmark, in 1886, and once in Scotland, where a male was killed near Dumfries, and recorded by Mr. W. G. Gibson in the 'Naturalist,' viii. (1858). This specimen passed into the collection of the late Sir William Jardine, and is now in the Edinburgh Museum.

In America this duck is known as the 'white-faced' and the 'summer' Teal. Nowhere is it more abundant than in the great rice-grown lagoons of the lower Mississippi, and here it is practically unmolested, and, like the green-winged Teal, with whom it associates, becomes very tame. In flight, however, it is very swift, rising straight into the air and alighting again as suddenly, forming a mark worthy of the sportsman. Yet in these comparatively wild regions the hunter seldom comes, and those that fall to the gun are killed from the ranks of basking flocks by the long gun of the southern squatter, to whom the expenditure of powder and shot is a matter of importance. Numbers are also still taken in Florida by means of the old figure of 4 trap, and these find a market in the coast towns of the south.

Like the Garganey, the Blue-winged Teal is a very silent bird; the female is known to utter a gentle 'quack' like the Teal, but the courtship of the male and its call seem to be little known, and I have had no opportunity of watching the birds at the nuptial season.

The Blue-winged Teal nests somewhat later than the Green-winged Teal and other western surface-feeders. The female makes a similar nest, and generally rather nearer to the water than that species; she lays from eight to twelve buff eggs—measurements 1·85 by 1·35 inch. The young are consequently later in their plumage, being often still incapable of flight on August 1, yet they are the first species to migrate south.

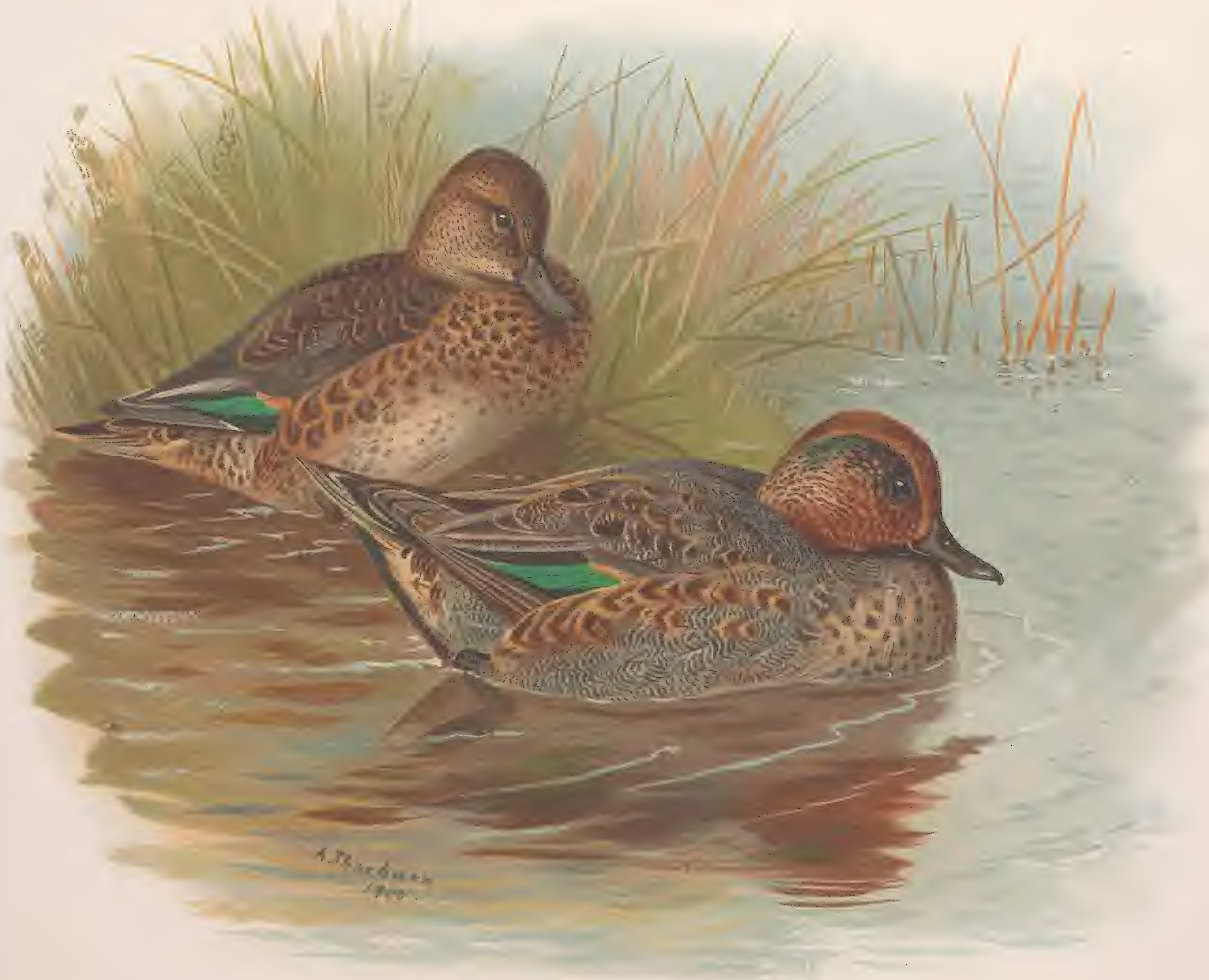
The Plumage of the Blue-winged Teal

Adult Male.—Weight 15 ozs. Bill black; feet yellow with dusky grey webs. Length 16 inches; wing 7·5 inches. Throat, forehead, and crown, lead-grey, and in spring has purple sheen; in front of the eye there is a long crescent of white, which is very noticeable in life; cheeks and neck bluish-grey; back red-brown, marked with black and buff hoops, a little green over the tail; lesser wing coverts, lapis lazuli blue; across the wing a bar of white feathers, and below these secondaries of bronze green; breast reddish buff edged with grey; flanks red-buff barred with black.

In the eclipse plumage the adult male closely resembles the female, except that the brilliant blue wing is always retained. This, however, in August, just before it is renewed, undergoes a slight lack of lustre, and at this season it is really most difficult to recognise the sexes.

The young males get a blue wing at once, but not nearly so bright as the old birds; and, like the Garganey, their mature plumage comes very slowly, there being no great change till the spring flush in April, when most of them assume the complete dress. The old males, too, often retain much of their eclipse dress through the winter, like the Garganey, and although the head feathers become complete in October, the rest of the plumage evolves slowly, and some are not complete till March.

Adult Female.—The general colour is dusky brown marked with buff; cheeks white, marked with small black spots except in the throat; breast similar to the male's but paler; wing coverts blue, but not so brilliant as the male, the white wing bar narrower, and the green on the secondaries not so bright. The white strip, too, from the bill to the eye is very indistinct.


A. Thorburn
1900

Litho. W. Greve, Berlin

TEAL,

Nettion crecca.
Adult male, eclipse August.
Adult male, Changing from eclipse to winter
plumage, October.

PLATE XXXI.

THE TEAL

Nettion Crecca (LINNÆUS)

THE Teal breeds as far north as Iceland, East Greenland, and locally along Northern Europe as far as the Lena delta, and in winter it is common throughout Europe below the extreme cold, as far south as the Mediterranean, especially in Spain[1] and Sardinia. It visits North Africa, Madeira, and the Canaries, and is common in Egypt, going as far south as Abyssinia. It is also distributed throughout China, Central Asia, and Siberia, going south to Siam and India in the winter, whilst in North America it has been obtained in Alaska in summer and probably breeds there, and visits occasionally in winter the Atlantic seaboard from the St. Lawrence to Florida.

In the British Islands it is well distributed and indigenous; being found in large numbers in the bogs wherever protection is afforded. In Wales and the north of England it is far more numerous than in the southern or eastern counties, and in Scotland it is abundant on Loch Leven, Loch Spynie, Murthly Moss, where one hundred have been killed in a day's shooting, the Tay Estuary, the Beauly Firth, King's Mire, Errol Marshes, Methven Moss, and locally in the counties of Aberdeen, Ross, Caithness, and Wigton. It breeds very sparingly in the Orkneys, but the Island of Damsey has always been a favourite resort. In the Shetlands it is also scarce, and during the winter it leaves these islands altogether. It is sparingly distributed all over the west coast of Scotland, being commoner again in Ayrshire and the neighbourhood of the Solway. In the Inner

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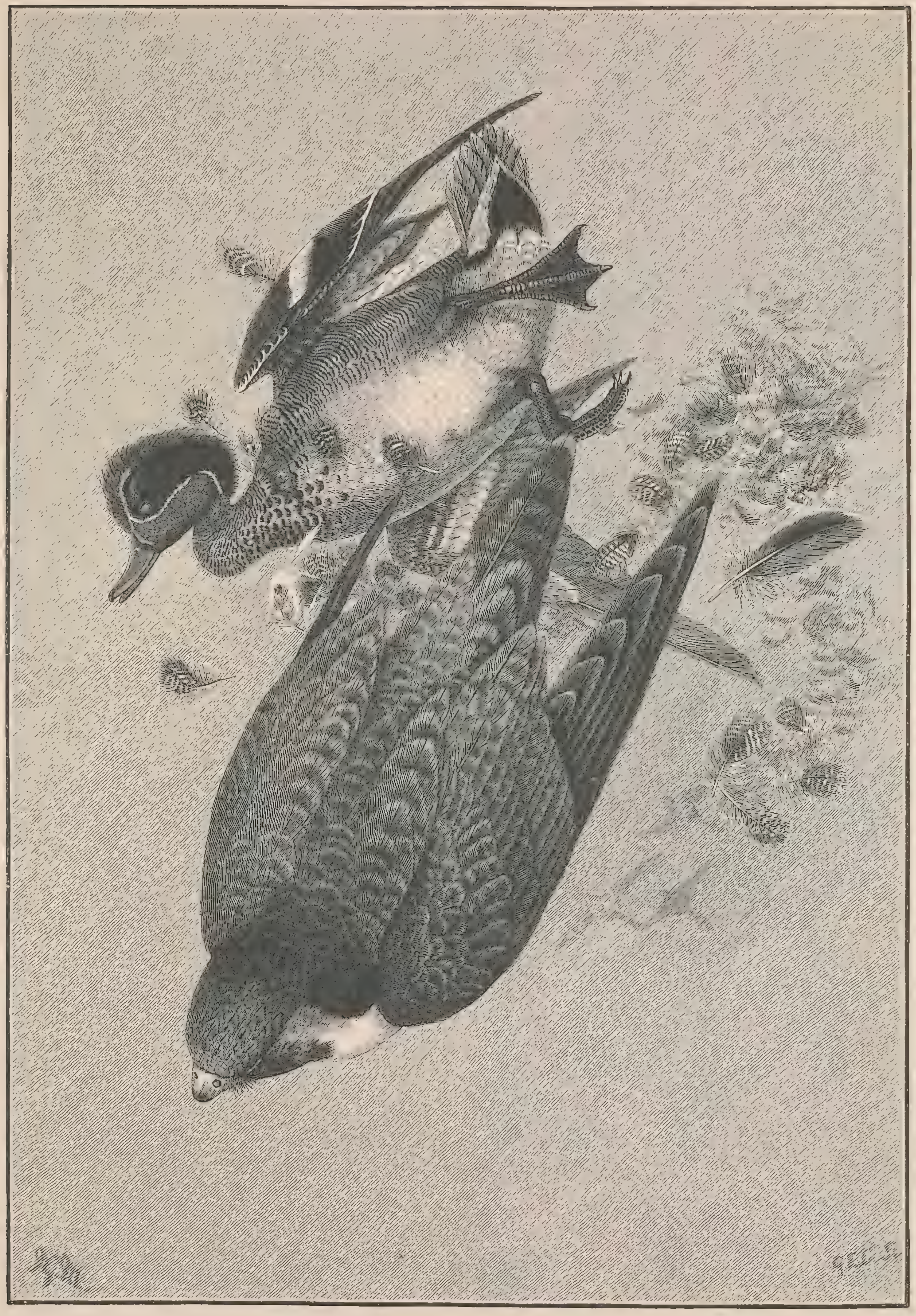
[1] Spain is probably the southern breeding limit of the Teal, the nest and eggs having recently (1901) been taken in the marshes near Seville by Mr. Heatley Noble.

Hebrides it nests and is common in winter, being particularly numerous on Tiree; and in the Outer Hebrides, where several writers, who have never been there, report it as rare, I found it to be exceedingly common locally, especially in the autumn. In Ireland it breeds in every county, and great numbers arrive in the autumn to spend the winter, whilst Messrs. Ussher and Warren state that 'great flocks of flappers come down in August to some lakes and tidal inlets in the north of Donegal.' Teal are especially numerous on the decoy lake at Kellyville, the Bog of the Ring (Tullamore), Abbeyleix, and certain bogs in Cork and Waterford.

The greater number of Teal that visit us in the autumn are not home-bred birds, but small parties following each other from North Europe; these assemble in their favourite resorts in numbers until others continually arriving push on the first comers, so that all through September, October, and November, there is a continuous stream of migration going and coming from bog to bog. When Teal first arrive in September at some favourite meeting ground, such as the Beauly Firth in Scotland, they do so in small parties, which, being weekly added to, sometimes merge into considerable flocks by the beginning of October, when the punt gunners sometimes make big shots at them. After this date they begin to split up again and work inland, distributing themselves in small parties over the whole of the bogs and mosses of the adjoining counties, where they remain the whole winter unless weather sufficiently cold to freeze their fresh-water haunts comes on, then they repair again to the firths and assemble in big packs. This is the general habit of the bird, namely, to be a purely fresh-water living species, only repairing to brackish water and tidal estuaries when driven there by force of circumstances. Nevertheless, both in Scotland and Ireland, I have seen Teal regularly repair to the open sea to rest there in safety during the day, when they have been unduly persecuted on the bogs near the seashore. Before it was drained Tents Muir on the Fifeshire coast used to be one of the best Teal resorts in Scotland, and after a little shooting at the beginning of the season the duck and Teal could be seen streaming out to sea every



PEREGRINE FALCON STRIKING A TEAL.

morning and returning to the bogs in the evening. In fact, all the surface-feeders will go readily to sea every day when their safety depends upon it. Teal seldom come to estuaries in winter until the frost is sufficiently severe to preclude all hope of an immediate thaw, and it generally takes a good week of cold to move them down. Their appearance on the coast is always a cause of great satisfaction to the professional gunner, for they are the easiest of all duck to circumvent, and keep so close together that the result of a shot is generally both successful and remunerative. It is not before many shots have been taken at them that they become wild, and even then their alertness is oftener the sign of open weather coming, and their consequent restlessness, than any extreme fear on their part. Teal are wonderful weather prophets, and seem to know almost a day ahead when the thaw is coming. They may be seen back again at their favourite lake or marsh whilst it is still frozen hard, and, sitting on the ice near some well-known spring, they wait for the thaw that is sure to come on the following day.

During the day the Teal is one of the most silent and inactive of birds. It will sit for hours motionless, apparently lost in a brown study, or with the head buried in the scapulars. Out on the estuary a pack rests on the tidal heave without a sign of movement until night comes and with it the desire for food. In the daytime, during the early autumn, even in our much disturbed islands, Teal are sometimes extremely tame, and will permit the approach of man within a few yards before flying away, and there are always certain holes in the large bogs where Teal may be found and closely approached with certainty unless they have been previously disturbed. On being flushed they shoot up straight into the air, sometimes very rapidly, and often swaying slightly and rendering themselves a by no means easy mark—in fact, I once heard a friend, who had ineffectually expended one hundred cartridges in one day, declare that *rising* Teal were far more difficult to kill than snipe. Be that as it may, I can remember certain windy days when *driven* Teal were wild and 'dodgy,' and were quite as difficult to bag as the snipe with whom they flew. Teal can suddenly turn in the midst of a straightforward flight and either dive downwards, or what is far more difficult for the gunner to accept, shoot straight upwards, and only present as a target a practically invulnerable stern.[1] It is a pretty sight on a sunny day to watch a flock of Teal about to settle: they wheel and swing almost as much as flocks of Dunlins, the dark backs and the light breasts alternately shining; and it is not until they have thoroughly surveyed their prospective resting-place and its approaches that they come to a halt. Whilst on the wing one male occasionally utters his low double whistle, but Teal are silent birds at all times, and the female rarely calls unless frightened, such as when the brood is threatened, when she emits a subdued little 'quack.' The food of the Teal is much the same as other surface-feeding ducks, but in Europe it does not go to the grain fields, although it will thrive well in confinement on hard substances.

Although Teal when in packs are easier to shoot than other duck with the punt gun, they often escape through the fact that they give no warning to the gunner that they are about to rise, as other duck will always do. They will rise suddenly into the air from the resting position, disconcerting the most carefully laid plans, so it is best to fire when within shot and take your chance of bagging a few birds. Of shoulder-gun shooting at Teal I have endeavoured to give some account in the 'The Wild-Fowler in Scotland,' so I need say no more on the subject.

In the case of the ducks it may be that the disposition to mate is, as with the deer, regulated, firstly, by the desire and fitness on the part of the female to do so, for in the springtime it is a common sight to witness amongst the Teal flock a number of males all paying attention to one particular female. Other females swim about, yet the males take no notice of

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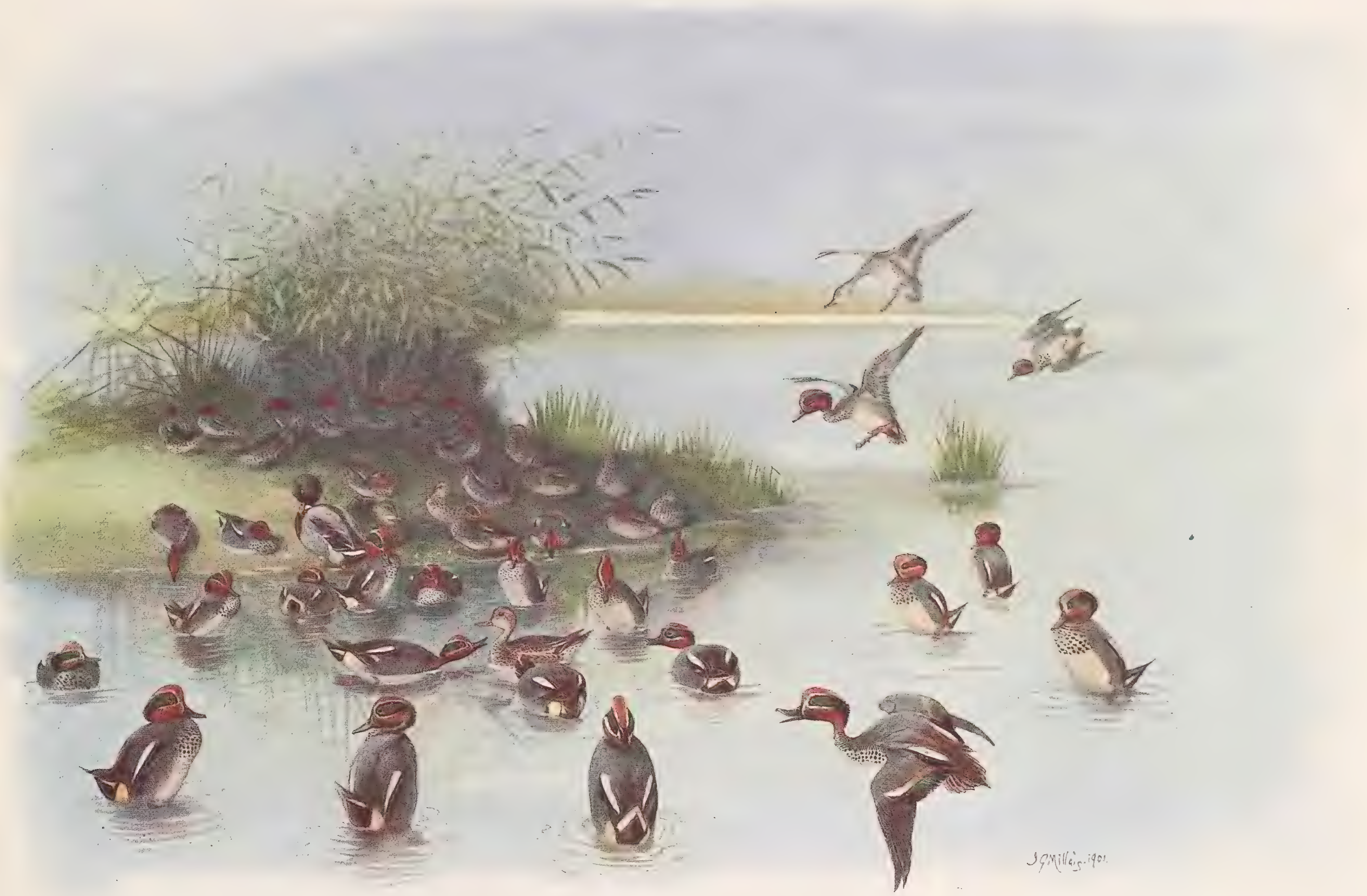
[1] With regard to the speed at which surface-feeding ducks fly, Sir R. Payne Gallwey has an interesting note in his *Letters to Young Shooters*, third series, p. 149, and quotes a letter from Captain Gould, who says that he estimates Teal to fly at the rate of 144 miles an hour. I think that this slightly over-estimates the pace; at any rate, in a similar case, I have timed Wigeon passing from promontory to promontory, and could not make out that their speed exceeded 90 to 100 miles an hour. Golden Plover are undoubtedly the fastest flying of British birds, although the Peregrine is generally given the palm. Partridges, Grouse, and Black Game vary, according to conditions, from 30 to 60 miles a hour.


J G Millais 1901

TEAL DRAKES COURTING A FEMALE.

PLATE XXXII.

them, all their homage being paid simultaneously to the reigning beauty. It is a pretty sight, this spring display of the Teal, all the more so as many take part in it, and the positions of the male birds are curious and extravagant. As if by mutual consent, several drakes raise their bodies from the water, erect the tail, arch the neck and pass their bills down the chest, at the same time they give voice to the low double whistle. During this movement the female sometimes permits one or even two drakes to approach her closely, whilst all the others are disposed in a circle or semicircle near at hand; but if any male that has not found favour in her eyes seeks to approach she will drive him off at once—an ignominious position which he seems to accept without question. It is only after some days of this volatile flirtation that the female eventually goes off with one male and remains strictly monogamous for the rest of the season, for after the end of April one never sees amongst Teal the *tertium quid* arrangement so common with other ducks. Teal drakes, on occasion, like the Mallard and the Shoveler, will sometimes even betray a very distinct alarm when their wives and families are threatened, for I once disturbed a Teal duck with young on an open moor at Cawdor. The drake was with her, and he, much to my surprise, was almost as anxious as the female to lead me away, resorting several times to the broken leg feints of his distressed partner.

The nest is to be found in almost any sort of sheltered position near the water, but the female evinces a marked partiality for placing it in heather. In Scotland I have usually noticed it in open heaths, sometimes far from the lake or bog, but generally near to a burn that leads to them. The eggs number from eight to fifteen, are of a creamy white colour, sometimes with a faint tinge of green, which fades soon after their contents are extracted; size 1·8 by 1·2 inch. None of the ducks show such an affection for their young as the female Teal; when flushed with her young brood she will display greater bravery in their defence, and evince more solicitude for their welfare, than almost any bird; and Messrs. Ussher and Warren mention[1] that 'in

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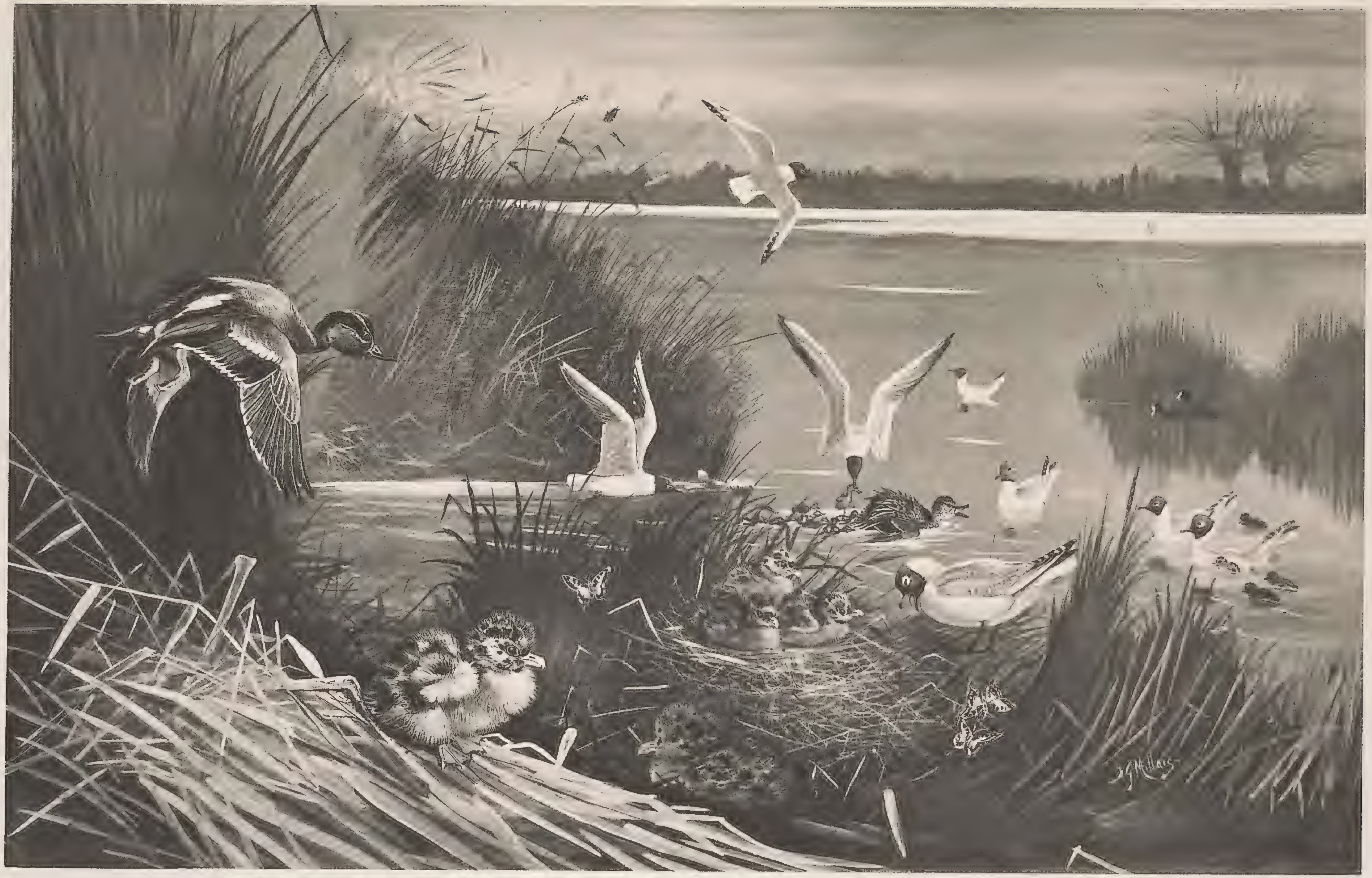
[1] *Birds of Ireland*, p. 198.

Achill a female has been known to follow her brood closely when driven into a yard where there were dogs and people.'

Young Teal have many enemies in the first few weeks of their existence, and at the present day no worse one than *individual* Brown-headed Gulls that now summer in some of the best duck resorts, and in some instances threaten to exclude the birds of sport. I have said *individual* gulls, for the murders are, from my own observations, distinctly the work of single members of the colony, who, from jealousy or natural viciousness, cannot bear to see the young of other species passing near their own.

It is just as much a truism to say that in the social scale of bird life some are good and some are bad, as is the case amongst men. For years whole colonies of Brown-headed Gulls, Rooks, Jackdaws, and the Owls and Kestrels of a district may lead a blameless life, and then there comes, from one cause or another (witness cannibalism in our own case), the criminal who strikes out into a series of thefts or murders, and for which the whole species is most unjustly condemned. If this one criminal and his family can be destroyed, well and good; but how rarely does this happen? As a rule he knows that he is doing wrong, and the very fact of his crime endows him with unusual cunning. He feeds his family on the proceeds of his depredations, and they in turn acquire a taste for these things, which is again transmitted to their offspring. Thus in a perfectly harmless community comes the bad set, which may in turn corrupt the whole, but which, in any case, will throw discredit on the respectable members.

Twenty years ago the rooks of England were practically innocent of stealing eggs and young birds, although their cousins in the north regularly hunted the fallows for Peewits' eggs; now there is hardly a community in the south of England that does not possess one or two professional thieves, and some even go the length of beating the hedgerows and taking eggs and young ones of little birds. If these expert robbers could only have been killed at the beginning it might have stopped the mischief in certain places; but how many estates in Britain possess keepers of sufficient observation and intelligence to



Walter L. Colls, Ph. Sc.

Brown-headed Gull killing young Teal.

differentiate between the criminal and the innocent, or have the patience to wait and watch for the one bad bird that is really doing the mischief? Let us look at one instance connected with the bird with which we are treating, and which must be my excuse for this digression.

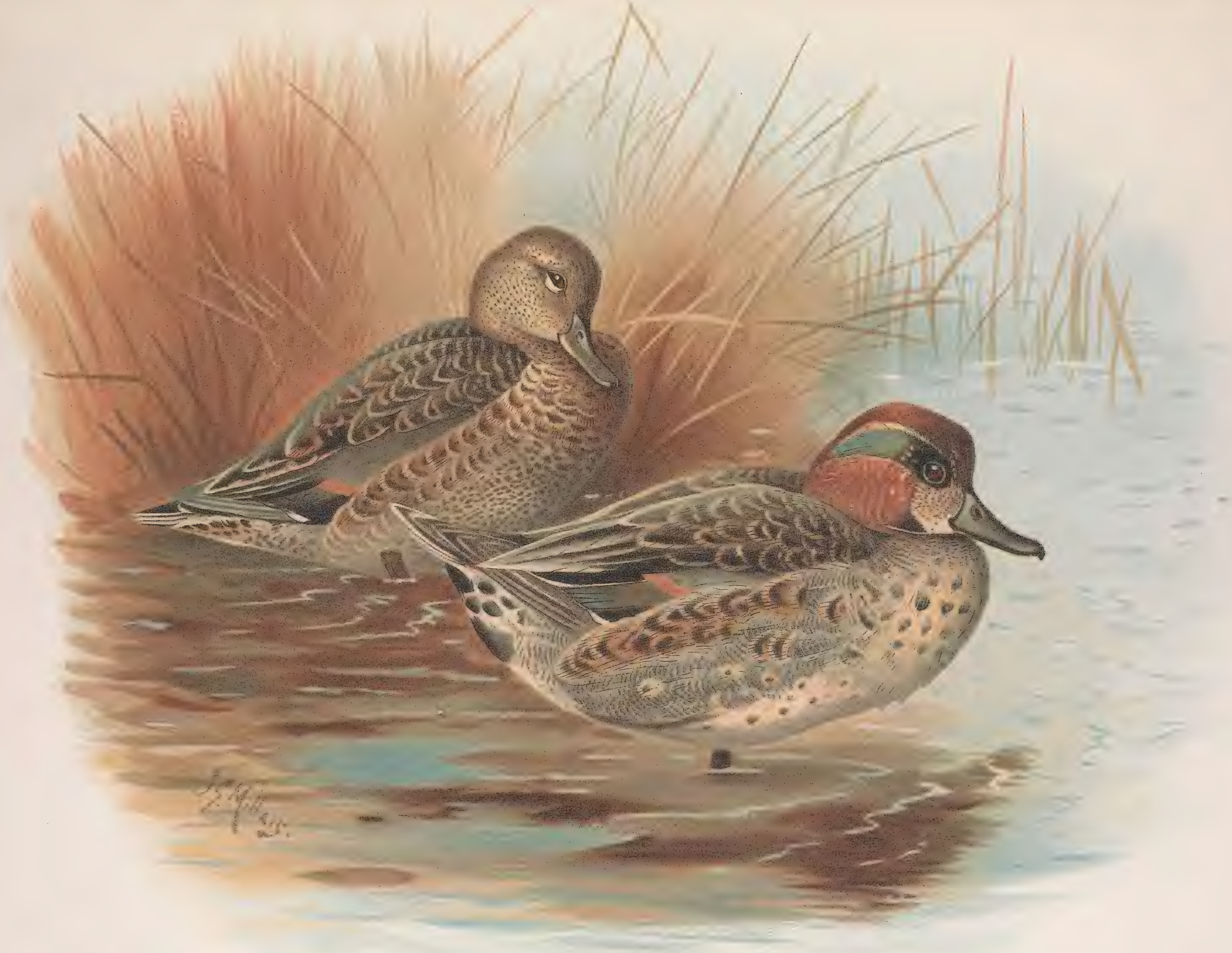
About the year 1884, the Brown-headed Gulls, formerly represented by a couple of hundred pairs, began to increase on the bog at Murthly to an alarming extent. Their nests were everywhere in the reed tufts, and about this time the Teal began to decrease. James Conacher, the keeper of the Moss, at once put it down to the gulls, who, he said, killed the ducklings as soon as their mothers brought them down to the bog, and said, moreover, that we should have no quantity of duck until a war of gull extermination had taken place. On talking the matter over with the head keeper, one James Keay, a very superior and observant man, he said that he had noticed that all the young Teal that were killed lay dead near two places, and in an area of thirty yards square. This seemed plainly to point to the work of individuals, and on subsequently watching the places Keay saw a gull that had a nest close by actually seize a young Teal, lift it into the air for a moment, and drop it dead. This gull and its partner were shot, and no more young ducks were found dead in that vicinity during the season; but the next year the gulls of certain nests were found to have again started the murders, and they were marked down and shot, after which no more ducks were killed for some time, and the Teal increased greatly. All the young Teal killed by the gulls were put to death in the same way, the skulls were nipped and crushed at the back, and they were not touched again. In June 1890 another pair began duck killing, and near the nest of these birds Keay found the remains of sixteen Teal, three Tufted Ducks, and two Mallard nestlings.

It is doubtful if young Teal when half-fledged dive for any part of their food as Mallard do. It is quite possible that the young do so, though I have never seen them go below the surface of the water except when very frightened or wounded. After the young reach the bogs in company with their mothers the Teal drakes soon abandon their families. A pair of drakes or three may sometimes be seen consorting together, yet it is more usual to see them going about singly, and in August shooting we nearly always find adult males in eclipse plumage alone. They do not join others of their own species until the formation of the winter flocks in October.

In captivity Teal are charming additions to any ornamental water, and do well in confinement. Like the Pintail, however, they are generally very shy, and it is only very rarely that pinioned birds will breed. Sir Douglas Brooke has only once bred pinioned Teal, and other owners of water-fowl tell much the same tale; yet Teal have nested regularly in such noisy and apparently unsuitable surroundings as the ponds at St Stephen's Green, in the city of Dublin, and more than once in the gardens of the Zoological Society in London. The Teal is said to have hybridised with both the Wigeon and the Gadwall, though I have never seen any such cross which was not open to doubt; but there is a remarkable hybrid between Teal and Garganey in the collection of the Hon. Walter Rothschild. Albinos and varieties of this species are also extremely rare, a fine one being in the possession of Admiral Hickley near Taunton.

THE PLUMAGE OF THE ADULT MALE TEAL

Weight 12 to 14 ozs.; length 14·5 inches; wing 7·25 inches. Bill black; legs and toes brown; crown, nape, throat, and cheeks, bright chestnut; surrounding the eyes and stretching back to the nape an elongated patch of purple, shot with green and enclosed with a line of white or buff according to season, while another buff stripe goes round from the side of the forehead down the front of the cheek near the bill; upper parts and flanks vermiculated with black and white, giving rather a blue-grey appearance at a little distance; on the secondaries a wing spot of bright green enclosed by black lines, the feathers edged with buff; rump and tail coverts black; tail feathers brown, occasionally suffused with grey and edged with buff; chin black, sometimes the dark colour extends some distance down the throat; front of neck, buff or



Litho. W. Greve, Berlin

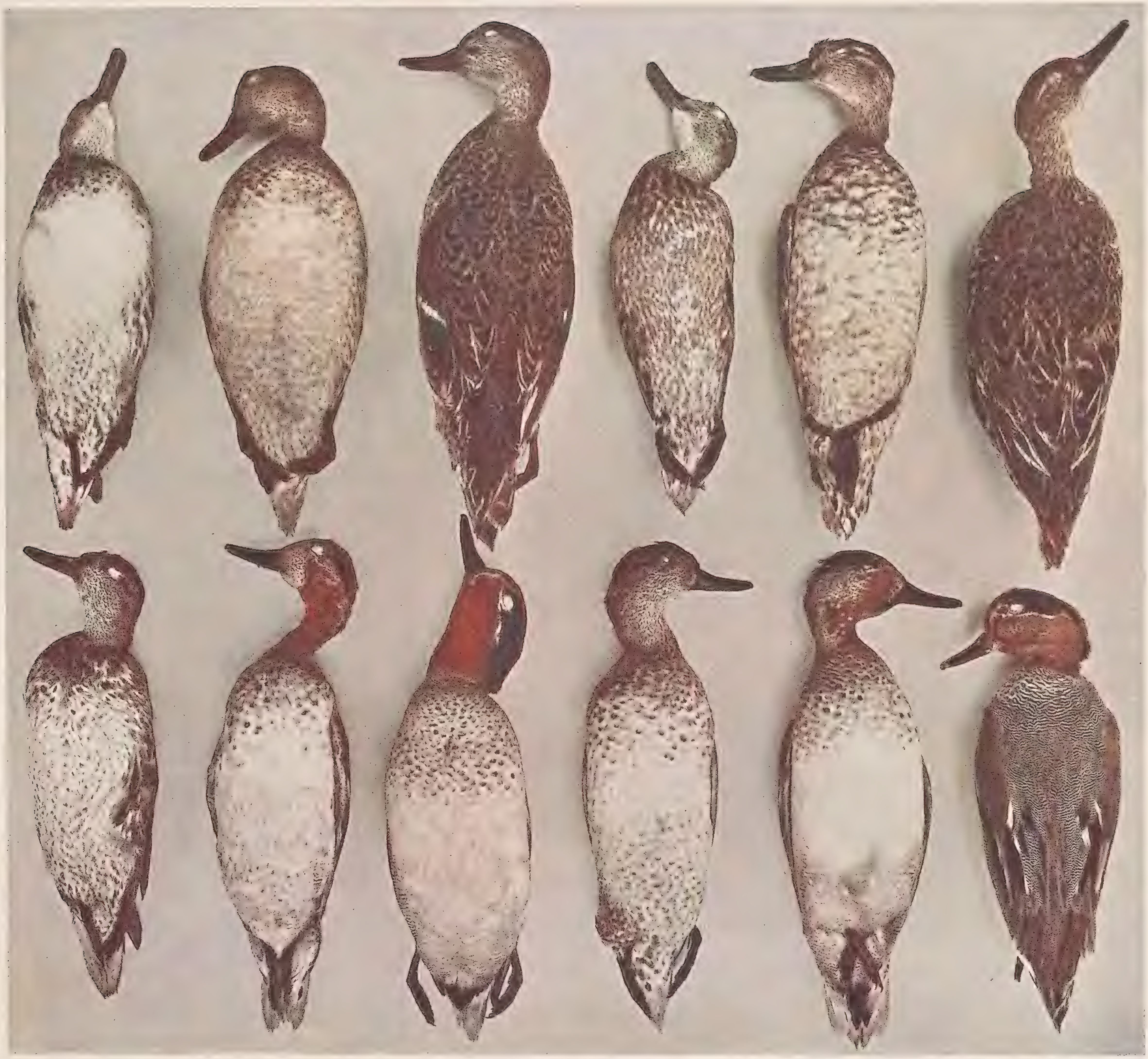
PLATE XXXIII.

TEAL.

Nettion Crecca.

Adult female, breeding plumage. August.
Immature male, Changing from first plumage to
full winter dress, age 4 months.

PLATE XXXIV.



TEAL and GARGANEY.

1. Immature Female Teal in first plumage. August.
2 and 3. Adult Female Teal. December. Breast and back.
4. Adult Female Teal, breeding plumage. August.
5. Adult Female Gargany, breeding plumage. August.
6. Adult Female Garganey, back. December.
7. Immature Male Teal in first plumage. August.
8. Immature Male Teal changing from first into winter plumage. October.
9. Adult Male Teal. May.
10. Adult Male Teal in full eclipse. August.
11. Adult Male Teal changing from eclipse to winter plumage. October.
12. Adult Male Teal, full winter. December.

white, spotted with black; breast and belly white and buff when living on tidal waters; behind the legs the white feathers are again vermiculated with black to near the vent.

In the new winter plumage, which is complete in the adult male about the beginning of November, the black spots on the front of the neck are more or less hidden beneath the broad buff or white edges; these feathers grow out gradually as the winter proceeds, and the edges probably wear off to a large extent, for, by April, the black spots are clearly defined. Sometimes, also, there are to be seen brown feathers in the centre of the backs of adult males in new winter plumage; these are in most cases either old eclipse feathers that have not fallen, or have partially changed colour, or new feathers of the winter which have come in, in sympathy with the eclipse, and have not yet changed colour to the vermiculated pattern. These are sometimes retained till the end of December. The old male Teal commences to change to the eclipse plumage about the beginning of July, and remains for the usual time in this dress. In October, when in full change, the actual moult of the head feathers generally takes place from the bill to the back of the head, whereas with the young male the reverse is usually the case.

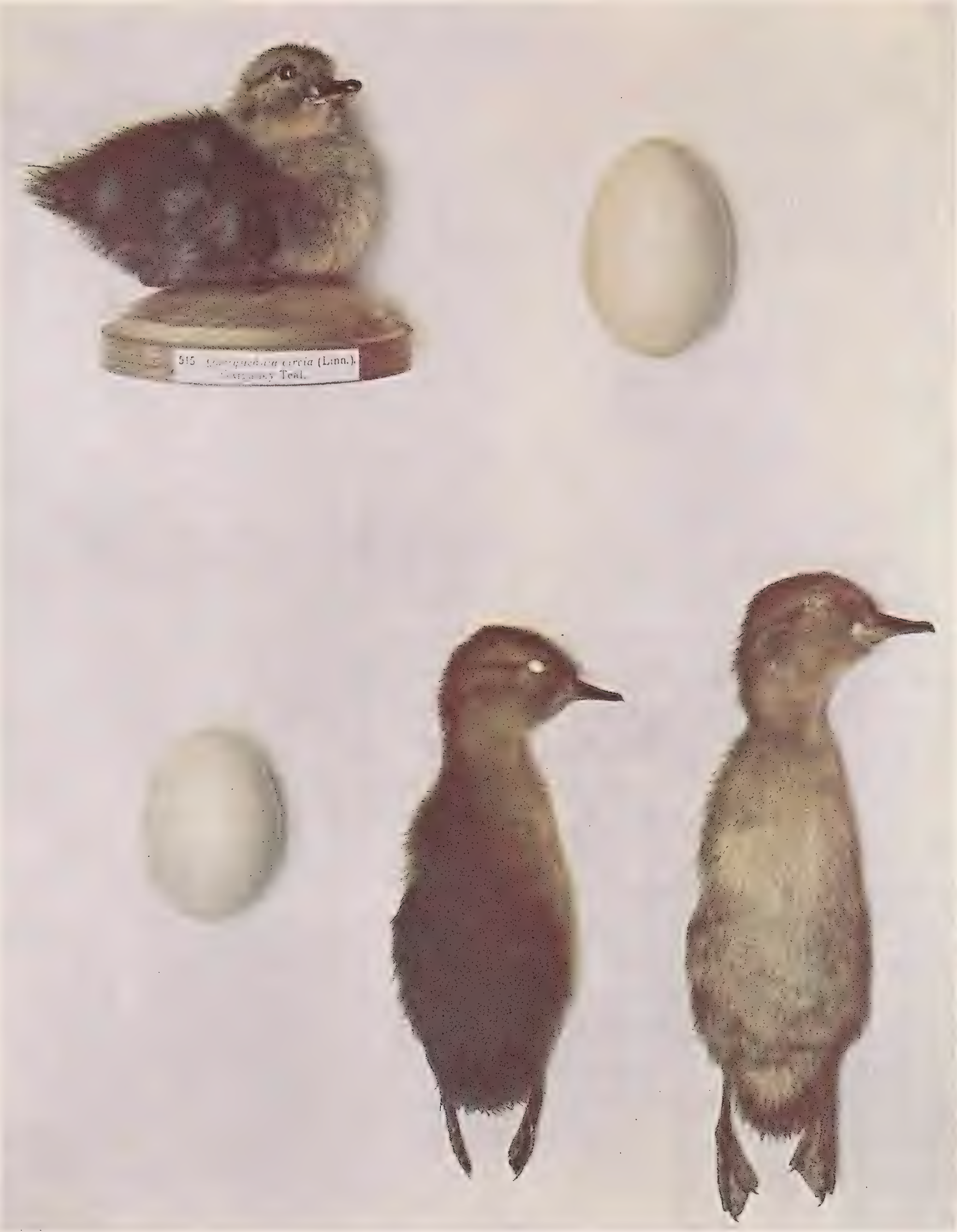
The Plumage of the Young Male Teal

The young male Teal in first plumage can be distinguished from the young female by its having the shoulder of the wing a bluer grey, and the green patch on the secondaries a brighter colour. At first both are generally spotted all over the breast and vent, but I have seen examples in which the whole of the breast became white at once. In the case of young males, the breast in any case soon commences to moult; and in the beginning of September most of the young males have white breasts. From this date onward the young male Teal passes through the same changes of moult and colour-change as the young Mallard, and often gets his complete winter dress by the middle of November. Young males, however, always retain a certain number of brown feathers in the back, which are not completely changed until the general rise of colour and general finishing up which takes place in March. Even then young males are not so brilliant as old birds, and it takes another year before their plumage is quite perfect. Yet they both pair and breed in this their first spring.

The Plumage of the Adult Female Teal

The adult female is mottled with black and brown on the upper parts and flanks, and during the winter the breast is white, concealing the spots which work down and appear in the spring. Old females in August appear very heavily spotted. The young females in first plumage resemble these last, but all the markings are less strongly defined and the colours less brilliant, especially is this the case of the green wing spot on the secondaries.

PLATE XXXV.

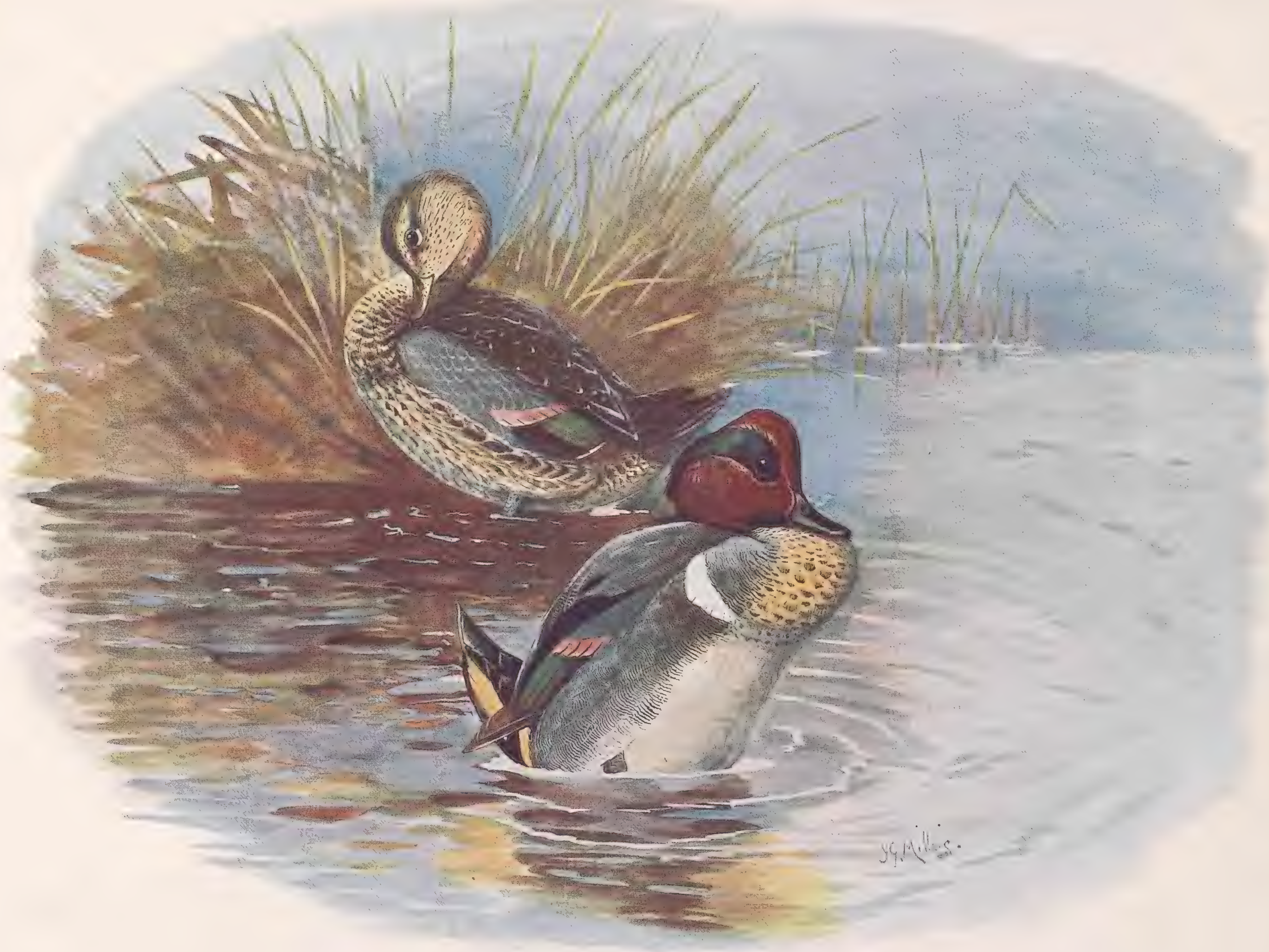

515 Querquedula circia (Linn.).
Garganey Teal.

GARGANEY. Young in Down.
Aged 1 day. Size of life.

EGG OF THE TEAL.
Size, 1·8 by 1·2 inches.

EGG OF THE GARGANEY.
Size, 1·85 by 1·35 inches.

TEAL.
Young in Down. Aged one day and two days. Size of life.



THE AMERICAN GREEN-WINGED TEAL.

(Nettion Carolinense.)

Adult male and female.

PLATE XXXVI.

THE AMERICAN GREEN-WINGED TEAL

Nettion Carolinense (J. F. GMELIN)

THIS small duck represents in the New World the Teal of Europe and Asia. As a rule it does not nest so far north as the other species of surface-feeders, although it is supposed to breed in West Greenland. In its summer range it extends no further than Wyoming, Alberta, Montana, Minnesota, Manitoba and British Columbia. In September great numbers may be seen collecting on the prairie 'holes' and the lakes of western Canada, and these gradually, as the season advances, work their way south, to winter in Kansas, Virginia, in the rice-fields of Carolina and Georgia, Cuba, Honduras and Mexico. They also extend their visits to the Bermudas, the West Indies, and Central America, and there is reason to believe that they go still further south.

The green-winged Teal has occurred three times in Great Britain. An adult male was shot near Scarborough, in November 1851, and passed into the collection of the late Lord Hill, at Hawkestone, where I have recently seen it. Another was shot on the Kingsbridge estuary in Devon, and was exhibited by Mr. Howard Saunders at a meeting of the Zoological Society on December 4, 1888. The same naturalist gives another example in his 'Manual of British Birds.'

The general habits of the green-winged Teal are identical with the Teal of Europe, so little need be said of them; whilst, owing to the abundance and variety of diet, the birds become popular or otherwise as an article of food according to the nature of the food upon which they have been living. In the Southern States the little 'green-wings' are considered second to none as a bird for the table, owing to the delicacy of their flesh, induced by an abundant course of celery and wild rice; whilst in British Columbia they are held in abhorrence for the rankness of the flesh, owing to their filthy habits of gorging on the putrid salmon which lie rotting in the creeks.

Immense numbers of green-winged Teal are annually killed in Canada and the United States on the occasion of their autumnal migration, and again, on the spring migration north in those countries, where there are no protection Acts, or where, at any rate, they cannot be enforced. The result is that in America, at least, the birds are not nearly so numerous as they used to be.

I shall never forget my first meeting with these little ducks, and the extraordinary fearlessness displayed by them. I got up one morning to take a breath of fresh air before breakfast at a roadside ranch on the Wyoming prairies, and there, within twenty yards of the door, were three Teal sitting composedly by the side of a little puddle of water. I walked up to them within three yards, and then sat down beside them without their betraying more emotion than to cock their little heads on one side as much as to say 'I hope you won't disturb us; it's been a cold night, and we're enjoying this morning's sun.' Needless to say, I left them in peace to enjoy their siesta. Ranchmen on the prairies have told me that these little ducks would sometimes come and share the food thrown from the door to the chickens; and Mr. Arnold, in the 'Nidologist,' tells of finding nests of the green-winged Teal built in tufts of grass on the sun-baked banks, along the railroad tracks in Manitoba, where the workmen constantly passed, the brooding females intent only on keeping warm their large nestful of cream-white eggs.

The green-winged Teal go north early, the males employing the same form of courtship as the European bird. The females lay early in May, and sometimes place their nests far from the water in exposed situations. They lay from seven to sixteen cream-white eggs—measurements 1·8 by 1·25 inch. The young have power of full flight by the end of July.

The Plumage of the American Green-winged Teal

Adult Male.—Weight 14 ozs.; length 14·5 inches; wing 7·25 inches. Bill black; feet and legs brown-grey; head and neck rich chestnut, with a broad band of bright green extending from the eyes to the nape. The buff lines round this are thinner and not so well defined as in our Teal; chin black; breast buff, spotted with black; on the back and flanks the black and white lines are more closely vermiculated than in the common Teal; on the chest and in front of the bend of the wing is a broad crescentic bank of pure white or finely marked greyish-white feathers; wings blue-grey; the secondaries tipped with buff and containing a speculum, half bright green and half purple edged with black; other parts like our Teal.

The adult female very closely resembles our Teal, in fact the only apparent difference seems to be a somewhat richer colour in the red-browns of the American bird.

The plumage-changes and moults are also the same as with the European Teal.

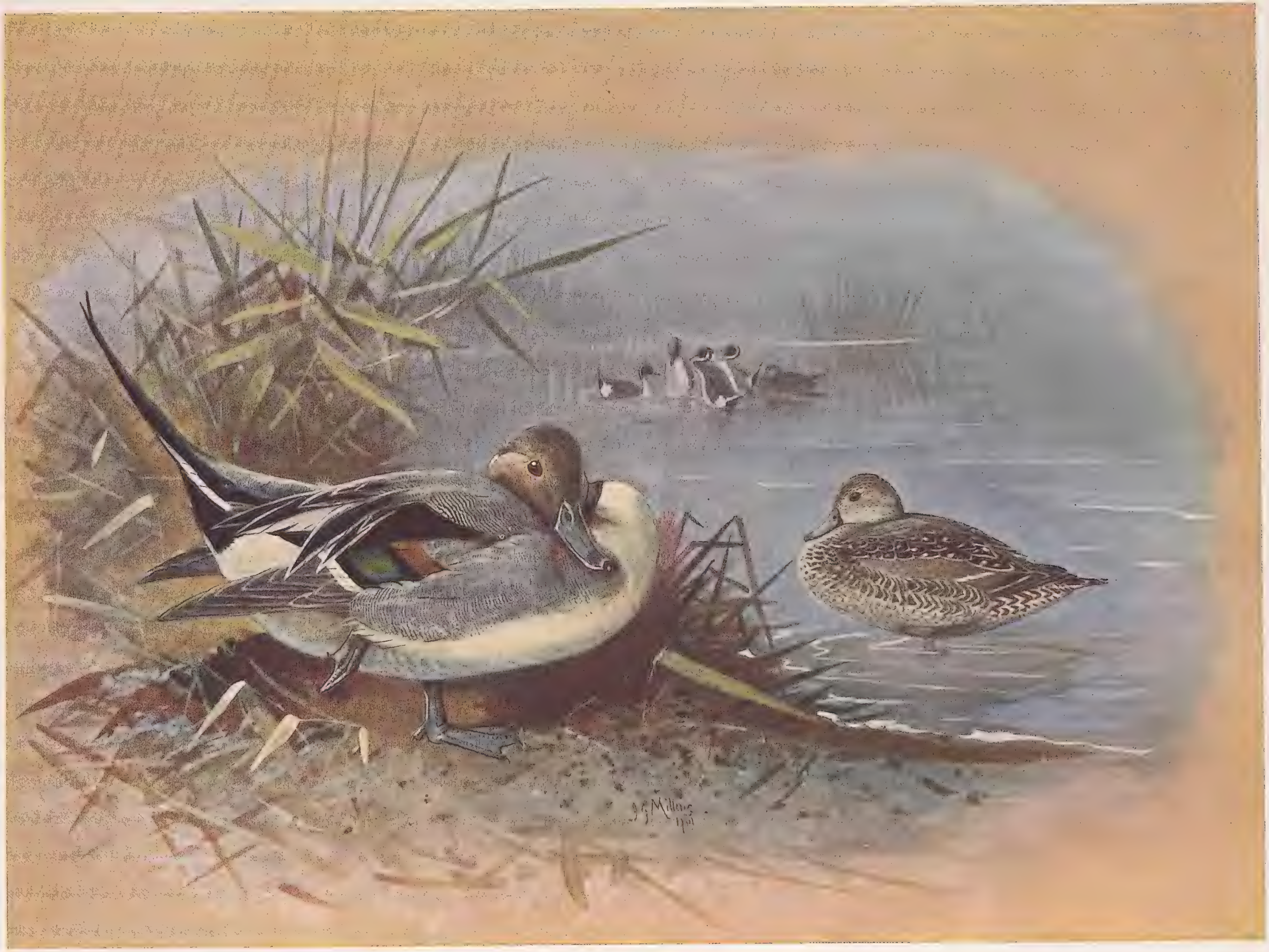
THE PINTAIL

Dafila acuta (LINNÆUS)

LIKE its congener, the Shoveler, this elegant duck roams far and wide over the surface of the earth. In summer it is generally distributed round the whole of the northern hemisphere. A few now nest regularly in Great Britain and the Faroes; it occurs also in East Greenland, and in greater numbers in Iceland, especially in the Myvatn district, though even there it cannot be called common. In Russian Lapland it nests in suitable localities, such as the mouths of the great Siberian rivers, and ranges right across Europe and Asia to the Pacific. Some few breed in Holland, and recent observation has proved that it probably nests as far south as the Rhone delta. Mr. Heatley Noble informs me that he has recently (1901) taken the nest with the parent bird in the marshes near Seville in Spain. In America and Canada the Pintail is likewise common in summer from Alaska to Labrador, and nests up to latitude 72°. In the New World the winter migrations extend over the whole of the Southern States, and reach as far as the West Indies and Central America. In Asia a stream of birds passes down to India by way of Cashmir, where they gather in thousands on the lakes in spring and autumn; many, too, winter in Southern China, and a few in Japan. In Asia the Pintail goes as far south as Borneo; it also winters in North Africa, in Egypt, and all over the continent of Europe south of a line drawn north of Great Britain and Denmark.

The full benefit of the Wild Birds' Protection Act remains to be seen;

PLATE XXXVII.



PINTAIL.

Adult Male and Female. Spring plumage.

but to its wise and thoughtful provisions we can already trace the present increase of this beautiful duck in our islands. Fifteen years ago the species was scarcely known as a resident, though fairly numerous on the east and north coasts of England as a winter visitor. Now, however, especially in Scotland, it is rapidly increasing.

The Pintail comes to Britain in September, its visits being very regular, but varying in the number of birds. Some years it is abundant on the east coast of England and the north-east of Scotland; in others but few appear. On the west coast of England it is rare, but off the Sussex coast, near Rye, it is sometimes numerous, though seldom seen, owing to its remaining at sea most of the day. During some winters it is seen in flocks off the mouth of the Thames, and occurs regularly all up the east coast as far as Yorkshire. From this point northward until we reach the estuary of the Eden in Scotland, where there is always a flock or two, it is rare. In some seasons I have seen a good number in the Tay estuary, and it occurs up that river as far as Mugdrum Island. We do not again meet with it on the east coast of Scotland until we reach the Moray Firth, where it is scarce; but numbers pass over the Moray every night on their way to the Beauly Firth, where the feeding-grounds are perfectly suited to its habits. In the Cromarty the Pintail is rare; but on the Dornoch it appears sometimes in large numbers on both sides of the firth. This, by the way, is the only ground where I have seen the Pintail so far neglect their usual caution as to feed by day. The Little Ferry in Sutherland may be placed as the regular northern limit of the species in our islands, for a few occur there every winter, resting by day amongst the Long-tailed Ducks out on the bay of Golspie. On the west coast of Scotland the bird is rare, as also in the Inner Hebrides, but in the Outer Hebrides, especially in North and South Uist, it is a rapidly increasing species. In the Orkneys and the Shetlands, too, it is only a casual straggler; but I have little doubt that the day will soon come when it will nest in both these groups of islands.

Every spring a few Pintail have come to Loch Leven; but these were not known for certain to have bred there until 1898, when four nests were discovered by Mr. W. Evans.[1] In 1899, Mr. F. C. Selous visited the lake and found several nests, whilst another friend of mine counted nine nests on the Castle Island. Mr. Heatley Noble tells me that, in 1900, he noticed thirteen nests of the Pintail on the Castle Island, and believes that this did not represent half the number that were there. In 1901 there was a further increase in the number; so the species, having formed a colony of breeding-birds in this northern paradise of the ducks, is now certain to extend its range in suitable localities both north and south, as the Tufted and the Wigeon have done. There is a small loch in Sutherlandshire near the Dornoch Firth where I feel sure the Pintail have nested intermittently for some years, and during 1901 my friend, Mr. T. E. Buckley, sent me a female Pintail in the moulting stage of her pinions, which he had killed on a marsh at Castlehill near Thurso on August 1. The bird probably bred there, presenting the first instance of such an occurrence in Caithness at this season.

In Ireland the Pintail is a regular winter visitor to certain localities, and, as elsewhere, its numbers vary considerably in different seasons. Some years it occurs plentifully on Lough Gill, the Granston marshes, the Shannon lakes, Lough Corrib, the Moy estuary, Lough Swilly, and the Kellyville decoy lake. Messrs. Ussher and Warren also mention Drumcliffe and Ballysodare bays, the marshes in co. Antrim and the decoy lake at Longueville near Mallow as regular resorts. I have seen Pintails in some marshes near the river Blackwater in Cork, and during the winter of 1891 considerable numbers in the brackish backwater at Malahide near Dublin. The Pintail is said to breed occasionally in the west of Ireland, but so far I have never met with any ornithologist who has either seen young birds or taken a nest. Lord Castletown, however, took a nest many years ago at Granston, Queen's

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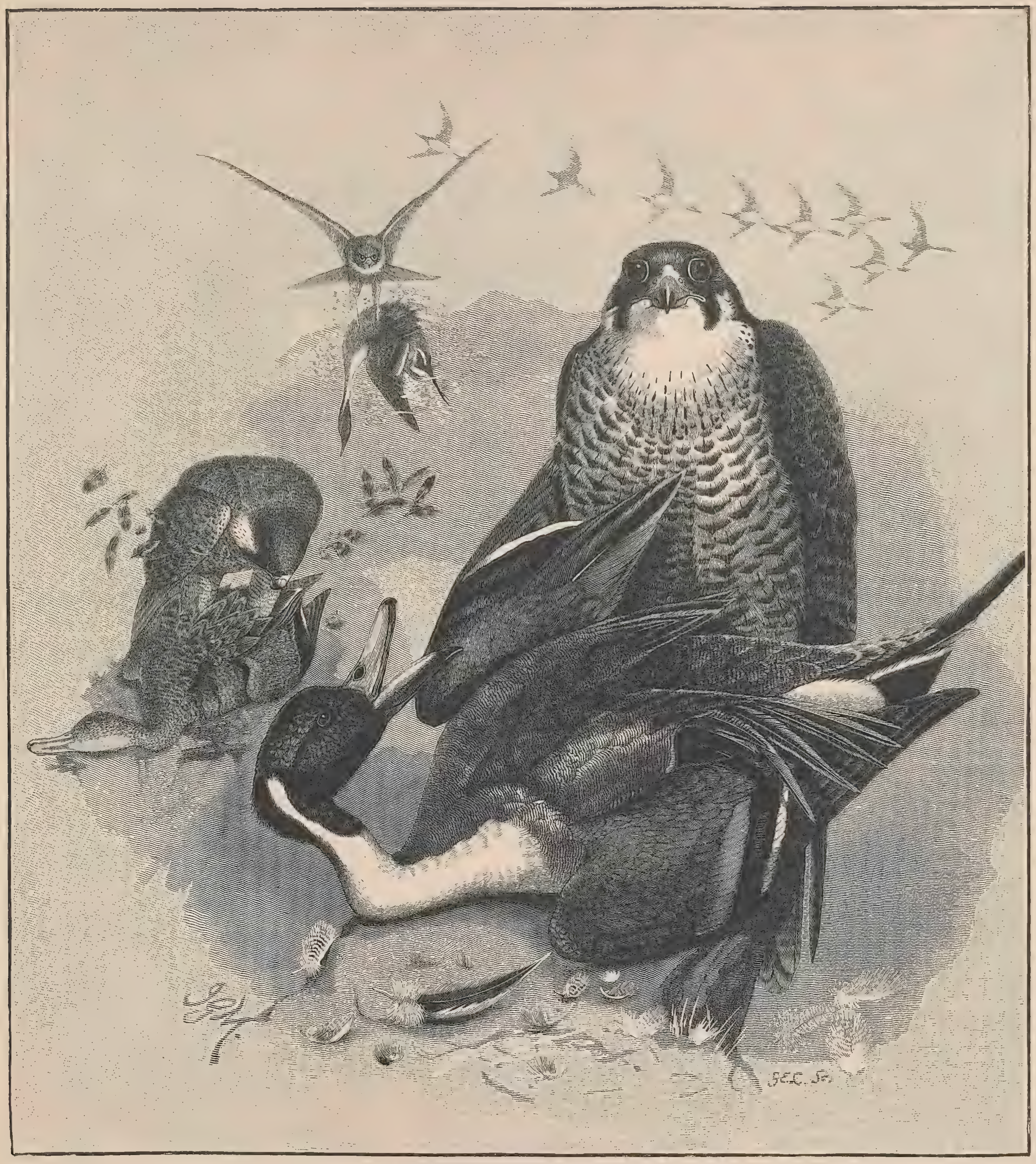
[1] Ann. Scott. *Nat. Hist.* 1898, p. 162.



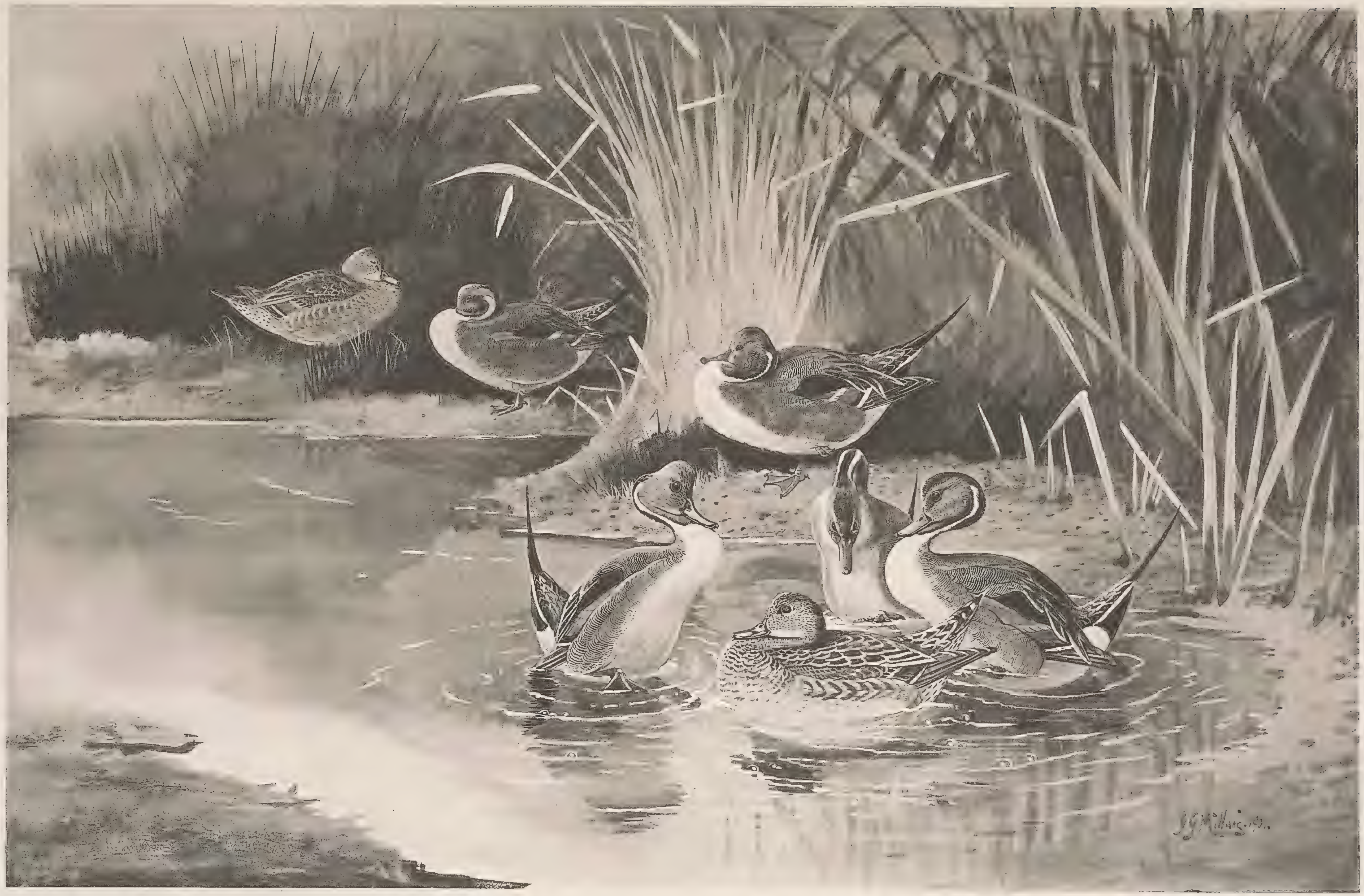
PEREGRINE FALCON AND PINTAIL.

County, and has still one of the eggs. He is of opinion that it annually nests there.

During the winter in Europe the Pintail generally resorts to salt-water estuaries, resting during the day, sometimes far out at sea, and flighting in to its feeding-grounds at dusk. In its general habits it resembles the Wigeon, but its main characteristic is its shyness, owing to which it seldom remains till broad daylight on the mud-flats, preferring to make off to the sea at the first streak of dawn. So regular is this habit, and so great the care it takes to avoid the presence of man, that I have heard old shore shooters who shot regularly on the flats where Pintails nightly fed, declare that they had only seen one or two in their lives. It is not remarkable, therefore, that the species should now be found to be fairly common, in the north-east of Scotland for instance, where at one time it was considered extremely rare. The Pintail is always the first to move away at the least suspicion of danger. Up goes his long graceful neck, and after this danger signal is hoisted he never seems to settle down and get over his fears, as Mallard, Wigeon, or Teal, will often do. Frequently, if you are approaching Pintail with the punt they give no warning at all, but ‘spring’ straight away from the position of repose, and the fowler only very rarely makes a successful shot at them by day. At night, when feeding on the *Zostera*, Pintail will mix indiscriminately with Mallard and Wigeon, and a successful shot with the punt-gun in Scotland often includes all three species. At that time they scatter a good deal, just as they do when at rest by day; so, apart from the noticeable feature of the drake's head and neck, they may be recognised by the loose formation of the pack, so disheartening to the punt-gunner. Pintail also sit high at the stern, and sometimes partially erect the tail at an angle of 75°, but never in the perpendicular as the long-tailed duck does. I once counted eleven hundred of them sunning themselves on the sandy shore of the Dornoch Firth, and these stretched in a line for over a mile. The next day they were feeding in little scattered parties of a dozen. They paddled along, 'tipping' up to reach their food when they espied the shellfish, and some which I killed were quite as uneatable as the Wigeon frequenting the same ground.

In America and India the fresh-water lagoons are sufficiently large to afford a refuge by day to the Pintail, and as their margins contain an abundance of small water-plants and wild rice, which are a favourite food, there is no necessity for the duck to seek the security of the sea. I have frequently noticed that Pintail, and Mallard too, sometimes, when extremely frightened, 'lose their heads' as they rise, and if suddenly disturbed will crowd together in a confused mass in the air, some flying one way some another; but this is rather the exception amongst either surface-feeding or diving ducks. They at once determine on their line, and rise together head to wind, and thus avoid clashing. Of this confusion the swamp-gunners of America take advantage, in the autumn, when great flocks of Pintail crowd the reed-beds of such favoured marshes as are to be found in the Kamkakee, Calumet, and Lower Mississippi: they endeavour to surprise the flocks, and kill numbers as they rise by a 'family shot.'

In the breeding stations of northern Europe, where man never molests them, the Pintail, the drakes especially, are just as shy as in the winter-time. In Iceland I found no small difficulty in procuring a specimen or two in the eclipse plumage, whilst Barrow's Golden Eye, Scaup, and Long-tailed Ducks would hardly move out of the way, and could even be caught with the assistance of a fly-rod, and neither Teal, Wigeon, nor Mallard were what we should call wild. The Pintail, on the contrary, seemed to maintain their inherent fear of man, and could be seen making off as soon as they caught sight of the intruder. Even in confinement where many species are kept, they are the last to become tame, and if the owner or whoever feeds them ceases to go near the pond for a few days, they seem to resume at once the instinctive fears of the wild state. Teal are difficult to tame, but with patience they will come right up to the feeder; whereas Pintail—which I have now kept for some



Walter L. Colls, Ph. Sc.

The Nuptial display of the Pintail.

years—will never approach closely unless men are constantly around them, as in such public places as St. James's Park or the Zoo. Any sudden movement seems to scare them, and the presence of a dog or a strange creature creates a veritable panic.

The Pintail feeds in the water like the Wigeon, reaching beneath the surface to pull up the water-plants by the roots, and then separating them; and in this position it will sometimes remain for a long time, working away with its feet on the surface of the water to maintain equilibrium. Ashore it walks about more freely and gracefully than any of the surface-feeders, and frequently stops, raising its long neck to watch and listen. At all times, except in the nuptial season, it is remarkably silent. The female sometimes utters a low 'quack,' and also makes a croaking noise like that uttered by the female Wigeon; and I have twice heard the male, when flying, emit the low double whistle, which he usually gives vent to only in the spring. At other times pinioned drakes seldom, if ever, utter a sound, except something like the cheeping-peevish cry made by the Wigeon when very frightened or wounded; we may presume therefore that, unlike the Teal, the Pintail drake, as a rule, reserves his double note for purposes of courtship. His flight is graceful and rapid, and on the wing the species can easily be recognised at a distance by its long body and neck, and its sharp-pointed wings and tail.

The nuptial call of the drake is identical with that of the Teal. During courtship I have noticed a disposition on the part of the males to crowd the female with their attention as the Wigeon do; there is the same 'start up' and tail elevation, and the same simultaneous action in the movement of other males sitting near at hand on the water. The female only occasionally utters a low quack, but she sometimes makes a call something like the growling croak of the female Wigeon. At no time, in fact, do the females of any of the ducks utter a sound resembling the call of the males, as is suggested in several well-known works on natural history. The notes of both sexes are always quite distinct.

Pintail seem to be quite monogamous after the first general scramble for wives, each pair settling down in the most exemplary manner after the first tourney in the arena of love. No hangers-on are permitted or encouraged, and both male and female search together for a suitable nesting-place in heavy undergrowth, and generally near the water. In Iceland I found one of their nests at some distance from the river, and situated in the open on the 'tundra' close to the nests of Scaup, Teal, and Wigeon, but at a greater distance from the water. The female Pintail lays from seven to twelve eggs, elongated in form, and of two different types, some clutches being buff only, while others are buffish-green. In an interesting note on this subject, Mr. Heatley Noble (our most thorough specialist on the eggs of the *Anatidæ*) remarks on this peculiarity in the eggs of the Pintail, all the other surface-feeding ducks, except Mallard, laying eggs of one colour alone. In the eggs of the Mallard you may note every intermediate colour between buffish-white and buff-green.

In confinement, provided not too many other species are kept on the same sheet of water, and there are quiet retreats, Pintail can be induced to nest and rear their young. Both within enclosures and in a wild state they have frequently bred with the Mallard, and the hybrids are rather handsome birds. The males, which are always in preponderance, are perfect mixtures of the two species, even to the top tail-feathers, which are long and half-curled. The Pintail has also bred in confinement with the Wigeon, and I possess a specimen of a female hybrid which was killed in a wild state on the river Earn in Scotland, in August 1898. With reference to the crosses between these birds, Sir Edward Grey, who is an admirer of water-fowl, and has long kept surface-feeding ducks at Falloden, Northumberland, writes: 'The only hybrid between British surface-feeding ducks that has occurred here is between a drake Wigeon and a female Pintail, which paired together for some years. In 1895 one young one was reared—a drake, which I still possess. The next year two more were brought up—a drake and a duck. I kept the drake for

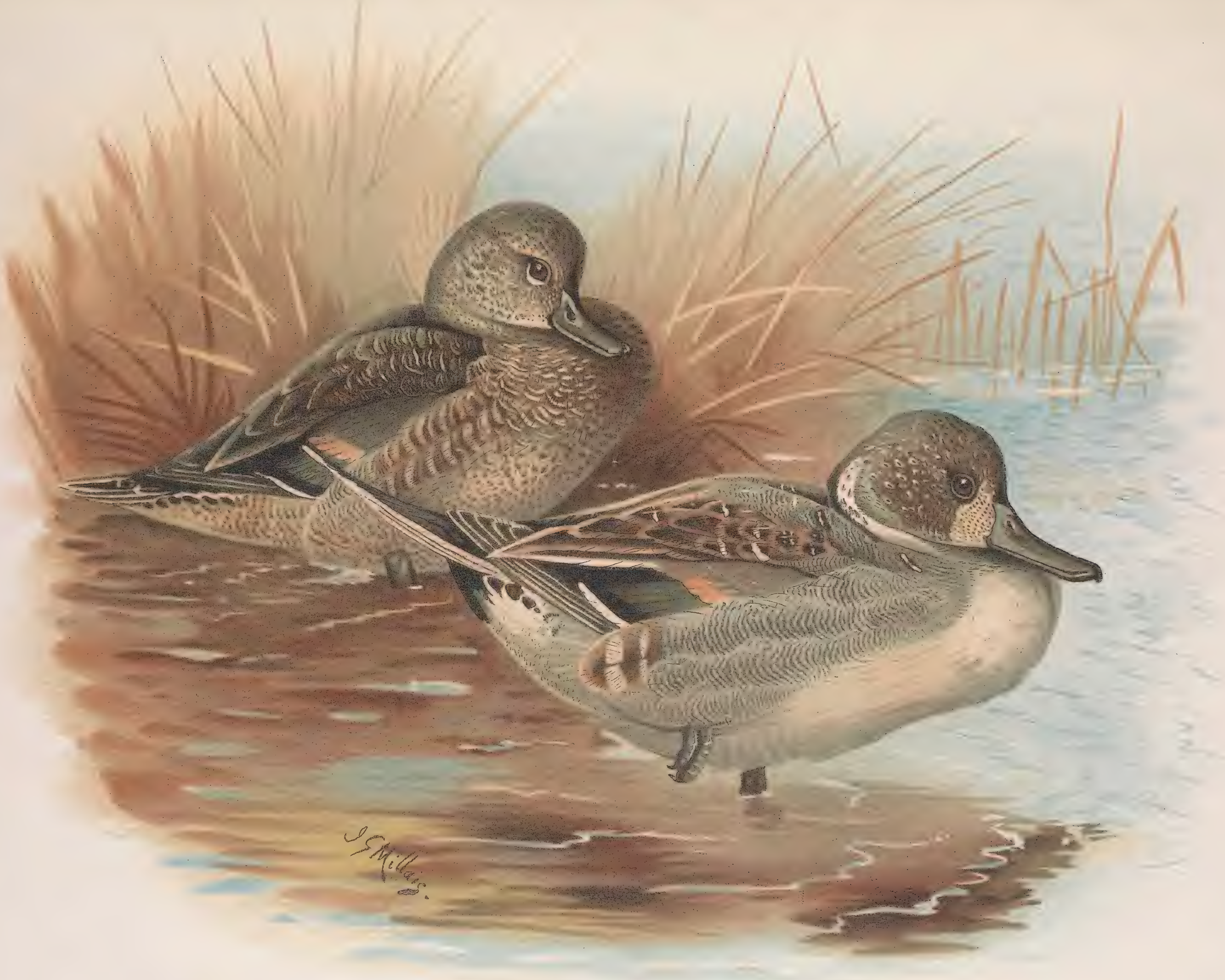


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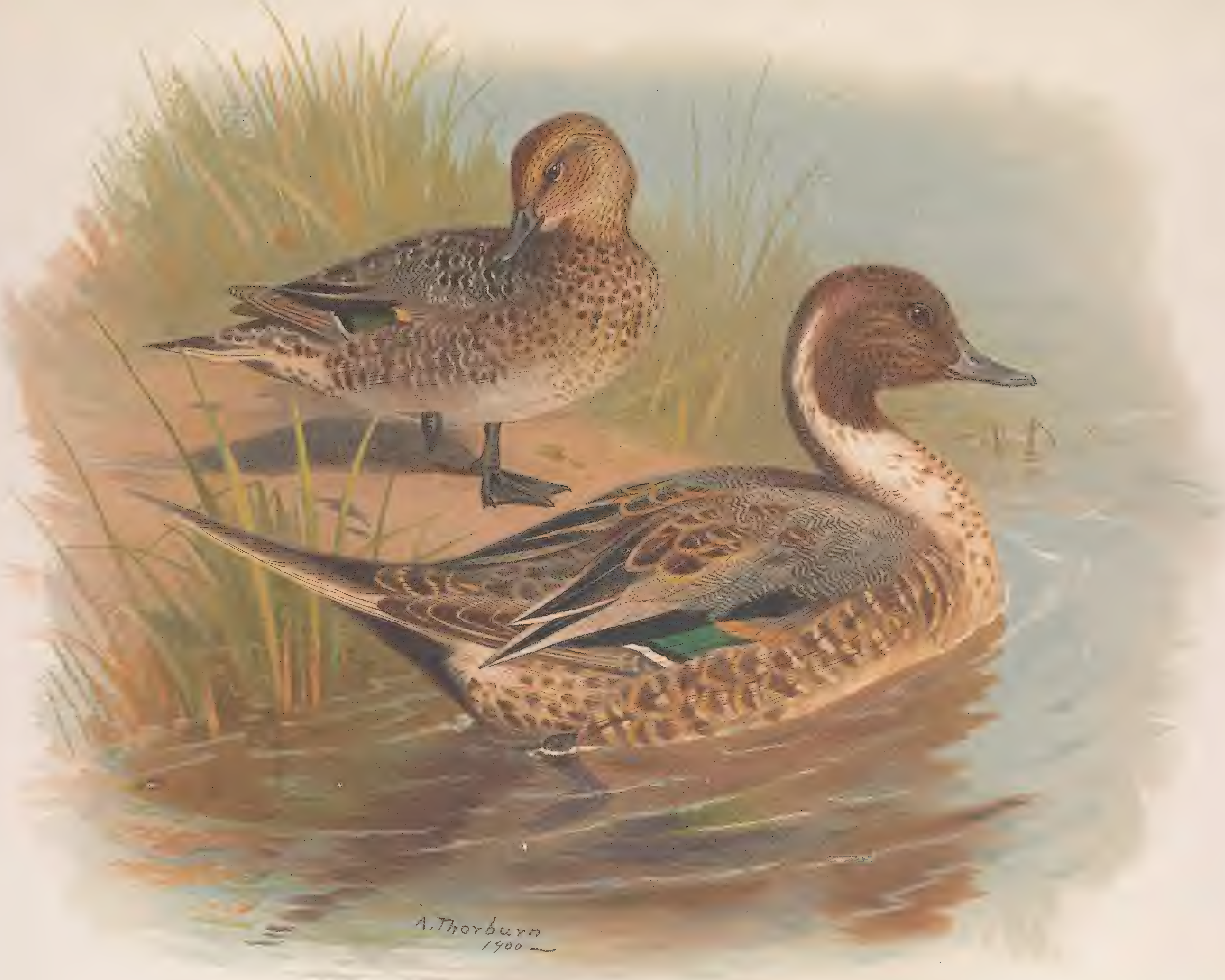
PLATE XXXVIII.

PINTAIL.

Dafila acuta.
Immature males.
3 months, first plumage.
5 months, assuming the full winter plumage.



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PINTAIL.

PLATE XXXIX.

Dafila acuta.
Adult male eclipse July. 30th.
Adult male Changing from winter to eclipse
plumage, June 30th.

about two years, to see whether his plumage would be exactly the same as that of the bird of 1895, and it was so. As I did not want more than one specimen I sent the second one to the Zoo. The female hybrid was a very beautiful bird; in shape she was most symmetrical and graceful, and in colour seemed to possess the rich colour and delicacy of marking of the Magellanic goose. Unfortunately, it escaped pinioning, and went away the following spring. She returned, however, in August, and spent the winter with us; but I could not catch her, and after the next migration she departed and never returned. I never had any more hybrids, nor did I notice any further disposition on the part of the Wigeon and Pintail to molest each other. The drake hybrid which I now have pairs every year with a pure Pintail duck, and pays no attention to the female Wigeon; as yet he has had no progeny, but this may be due to the fact that none of the eggs laid by the Pintail duck have been reared. In plumage this male hybrid is roughly as follows. He partakes of the dress of both parents, but is a bright handsome bird and looks like a distinct species; in form he is like the Pintail; in the eclipse plumage he is not such a rich brown as the Wigeon, nor so grey as the Pintail. He comes into full plumage again about the middle of September, *i.e.* about a fortnight earlier than the adult individuals of either of the species from whom he is descended.'

Sir Edward has also reason to believe that the Pintail of Europe has once paired with the Chilian Pintail.

THE PLUMAGE OF THE PINTAIL

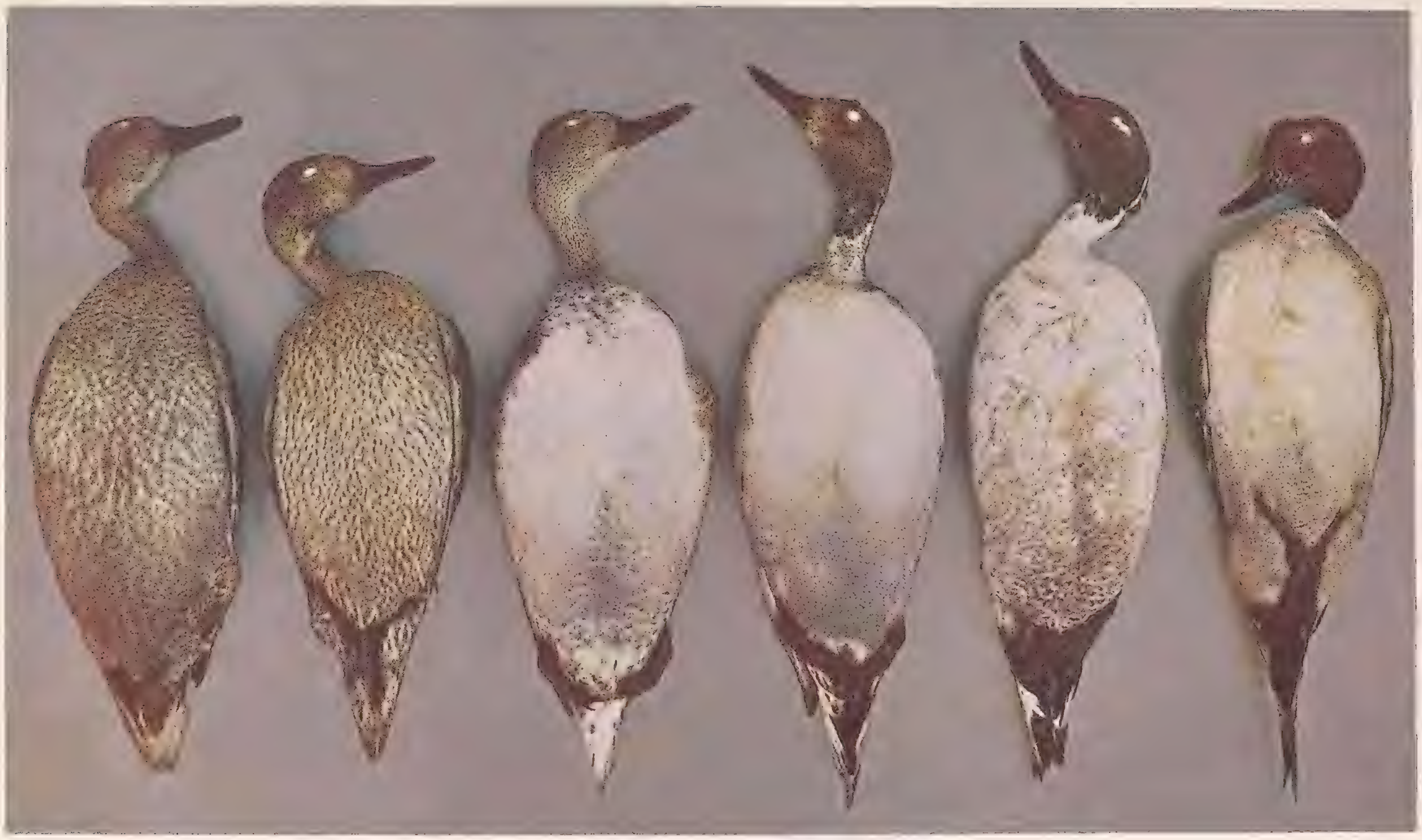
Adult Male—In winter dress.—Weight 2 lbs. 10 ozs.; length (largest specimens) 29 inches; wing 12 inches. Bill, legs, and feet slate-grey; head brown, shading into green over black on the nape; neck at the back bronze, working down to grey; on each side of the neck a white stripe extending to the white breast; flanks and back grey, and reticulated with fine black lines;

the long scapulars black, with grey edges; greater wing-coverts buff; upper wing-coverts grey (but much bluer than the female); the secondaries have a bronze-green wing-patch margined with black and tipped with white; under tail-coverts black, tail grey, with central feathers black.

I found old Pintail drakes in Iceland in full change to the eclipse on June 29. In a flock of twelve males some had just begun to show the first brown feathers, and others were nearly in complete dress, and those that I have kept in confinement commenced to alter about July 1. The plumage change was rapid and complete in about eight or ten days. The eclipse plumage then remains dormant, as described in the previous remarks on the Mallard and its colour-changes, and the beginning of the autumnal moult commences about September 6. After this date the usual colour-changes and sympathy with both plumages progress till the adult drake is again in full plumage, about the middle of October or first week in November.

When in first plumage the young male and female are exceedingly like one another, especially at the commencement of this period; they also resemble the mother to a certain extent, but from her they can be easily distinguished by the *small spots* which cover the breast and belly, and the narrow brown edge of the feathers on the back and scapulars. The young male Pintail, however, like the young Mallard drake, almost as soon as he has assumed his first dress commences to colour-change in the back and scapulars. A grey tinge suffuses the brown plumage, and slight reticulations appear on the feathers themselves, rendering it easy to notice the difference between him and the young female. He is also somewhat larger. By the middle of September the usual moult and the more advanced feather-changes commence, and sometimes, in birds in a high state of condition, advance so rapidly, that young drakes of the year may attain the full plumage of the adult drake by the beginning of December. Most of them, however, retain a considerable proportion of the brown plumage until February, when the spring flush finishes off the dress. Even then young Pintail drakes are not nearly so brilliant as two or

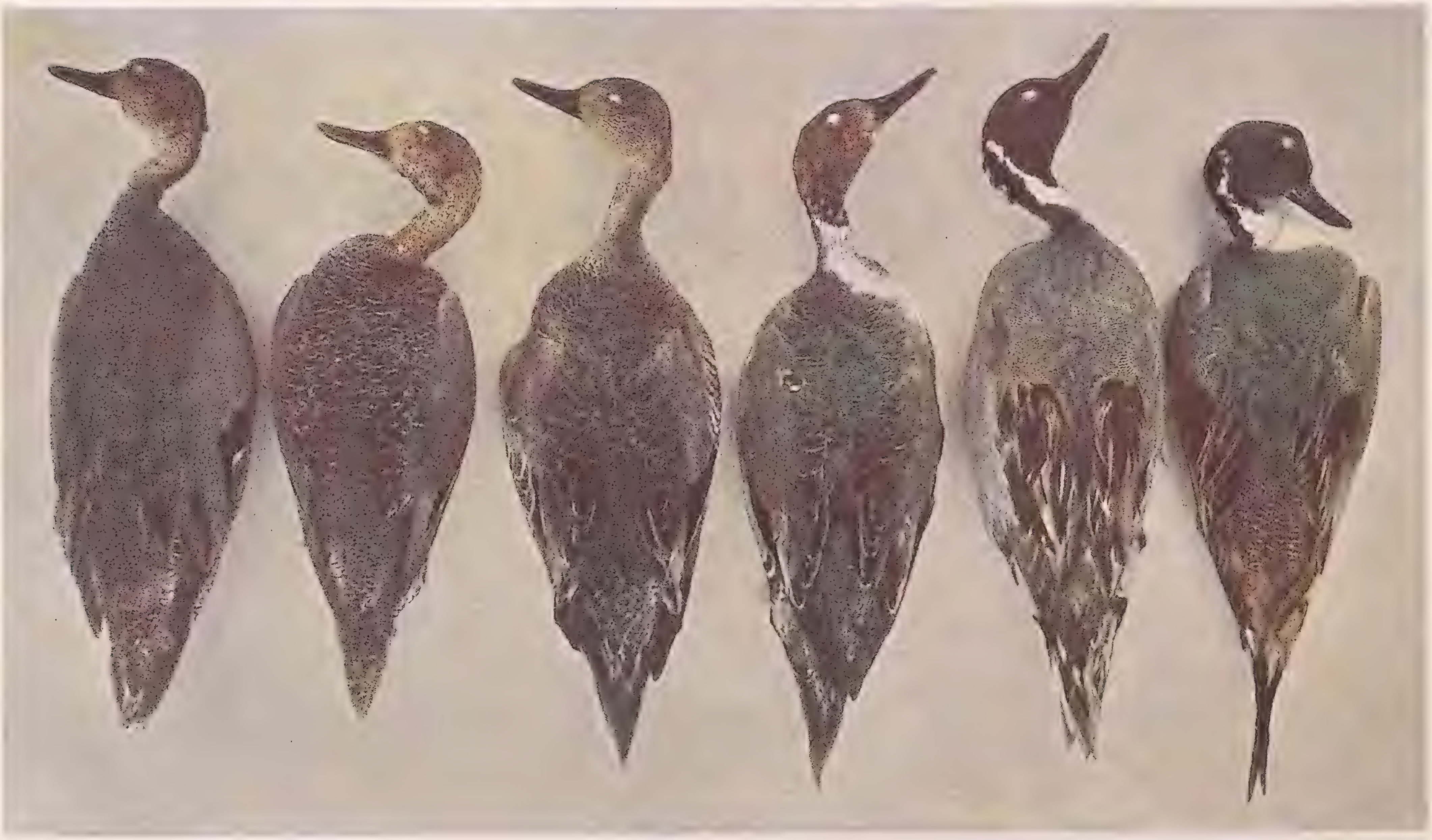
PLATE XL.



PINTAIL. Breasts.

Passage of the immature male from first plumage to maturity. Full dress acquired in 7 months.

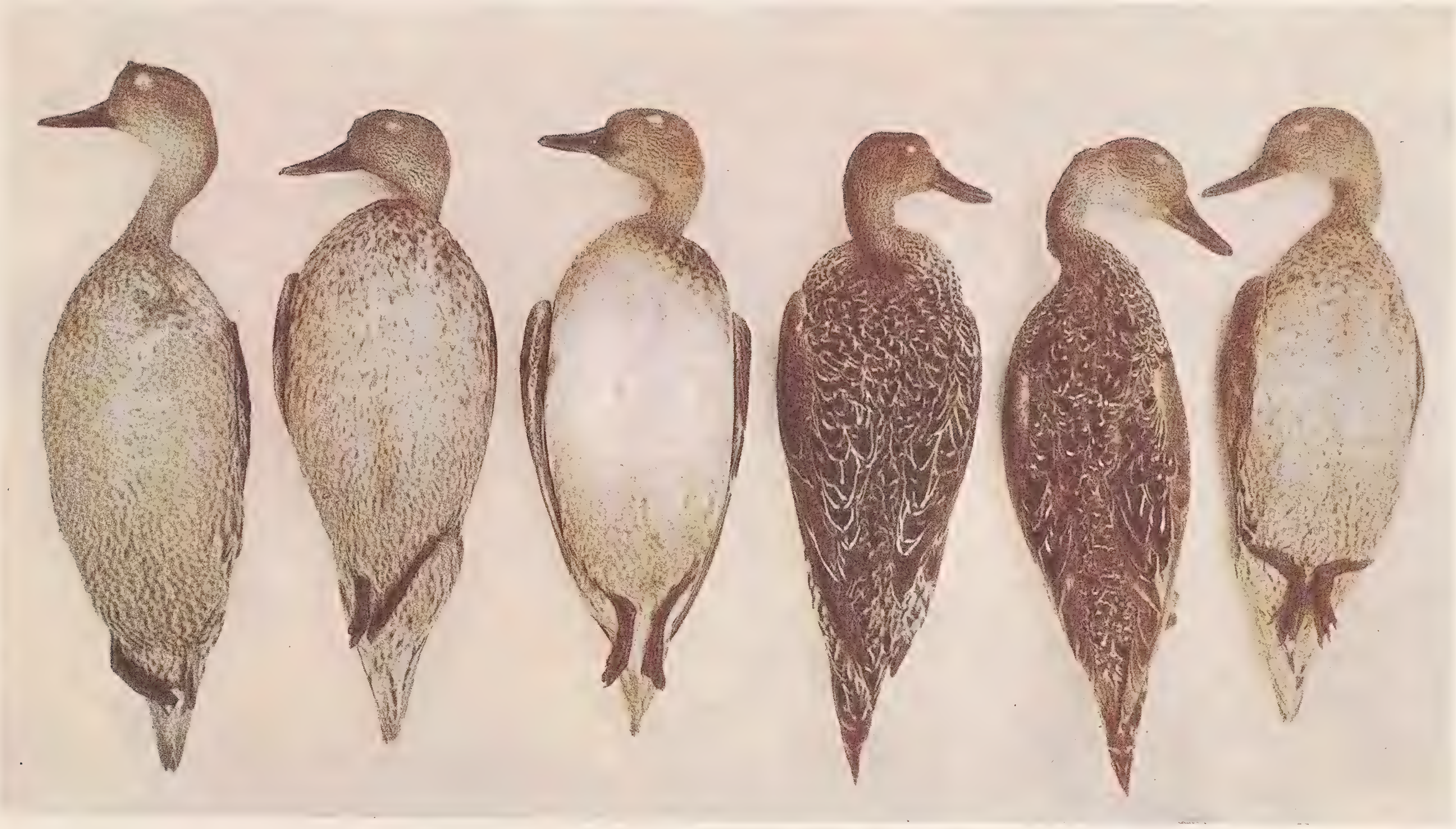
1. First plumage. Complete. August. 2. September. 3 and 4. October. 5. November. 6. December.



PINTAIL.

Same birds as above. Backs.

PLATE XLI.



PINTAIL. Female Types.

1. Immature female in first plumage. Showing first white feathers of first winter dress. September.
2. Immature female. October.
3. Adult female. Full winter, breast.
4. Adult female. Full winter, back.
5. Adult female. Full breeding. June. Back.
6. Adult female. Full breeding. June. Breast.

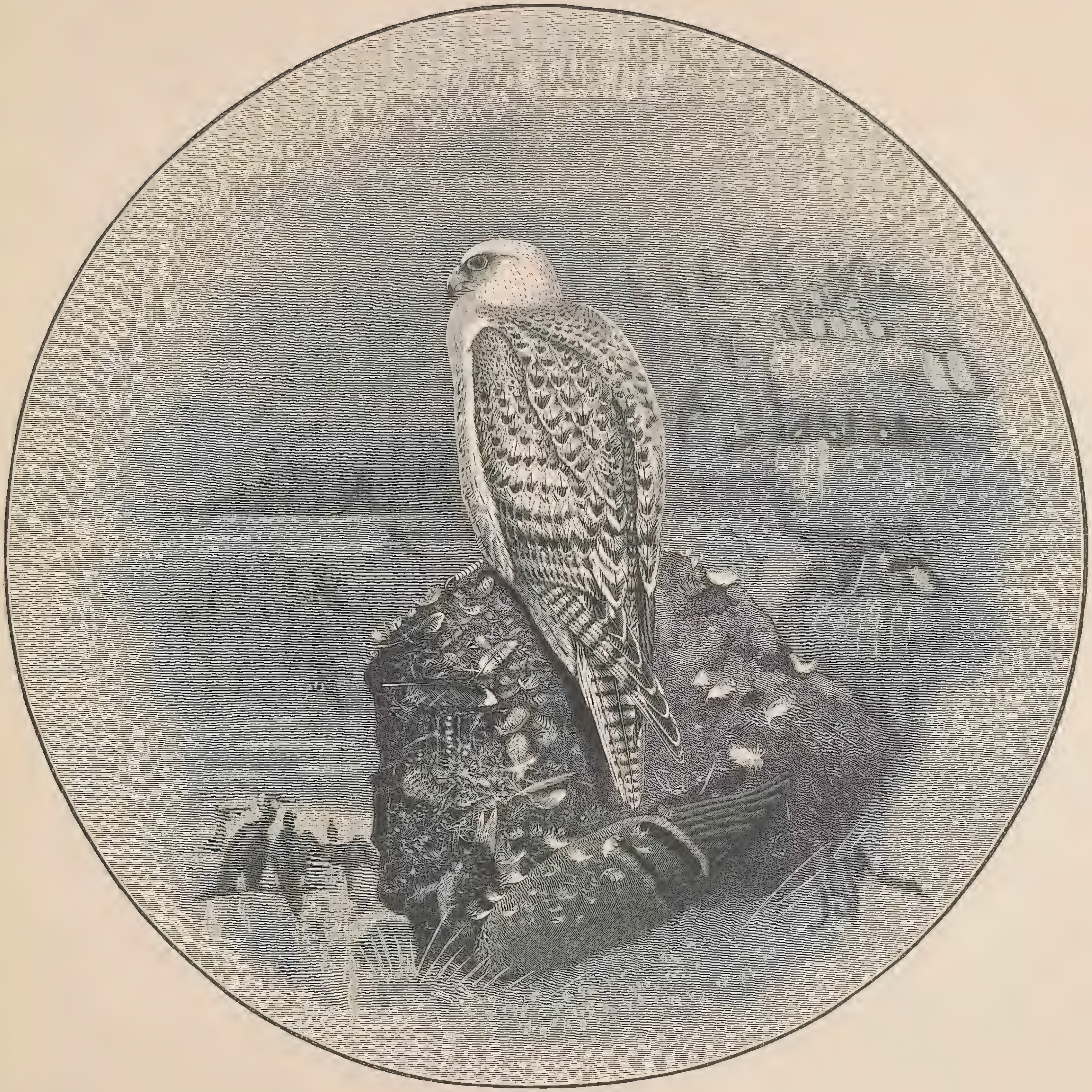
three year old birds, and often show their youthfulness by their shorter tail, dull colouring on the head, and reticulated black bars traversing the white stripes on either side of the neck. Some young Pintail drakes are very backward in assuming their full dress; two young males that I procured in 1899 did not throw off all signs of immaturity until July 3, and on July 6 they both commenced to change into the eclipse, and were only a few days later than an old drake in assuming the brown plumage.

These young males are most erratic in the portions of the plumage which they change in the autumn. One will entirely moult the breast before any other part of the plumage has commenced to fall, another will change that of the head and neck, and another that of the back and tail. A general rule seems to apply to all the young surface-feeding drakes, namely, that the moult and colour-change are more or less simultaneous over the entire plumage; but the Pintail must be held to be the exception. Some individuals certainly follow the general rule, but many cast their feathers 'in patches.'

Young Pintail drakes will certainly mate in the first spring, like Mallard and Teal.

The Adult Female.—The prevailing colour is brown, with black spots throughout the head, and as to the neck, and back, and scapular, black feathers with brown edges. In the winter, the breasts of individual females vary considerably, some being nearly pure white from the chest to the vent, others creamy buff or greyish-white buff with dark brown-grey spots in places, and buff-white with spots all over the breast and vent. As the breeding season approaches, the light breast birds without spots begin to show them, and in June all females are more or less heavily spotted. In June, too, many dark females attain buff bars and spots on the back and scapulars. The adult female has a green-bronze wing-spot like the male, but not nearly so bright. The lesser wing-coverts are brown-grey, and sometimes beautifully edged with white like those of old female Wigeon. The brown tails also are well barred with buff.

The young females attain full plumage by December, and I have noticed that many of these, after casting the small spotted feathers of immaturity, get the clear grey-white breasts without showing spots. It is a mistake, however, to assume that all these unspotted females are immatures, as many old females of the *light type* also assume this garb.



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